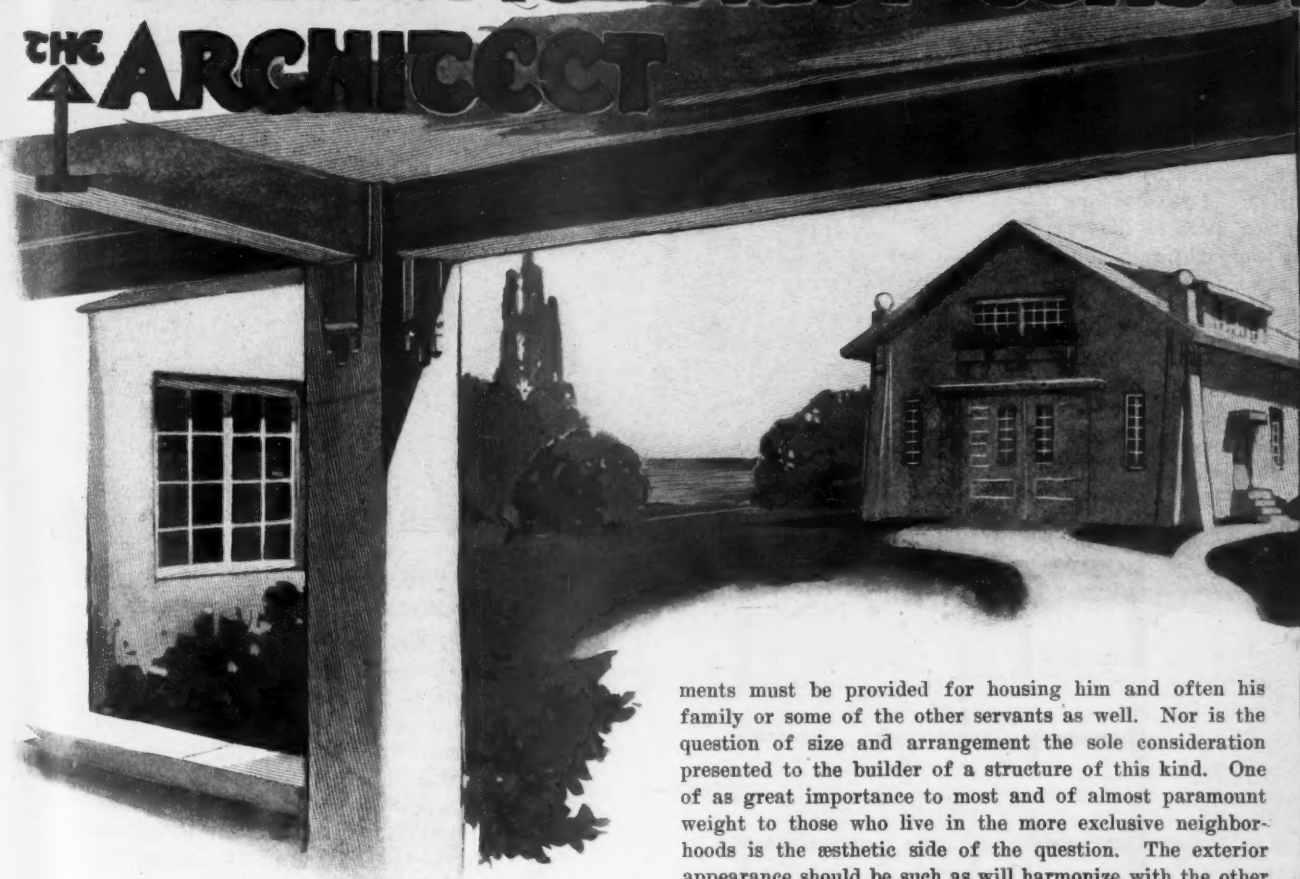


MOTOR AGE

WHEN THE MOTORIST CONSULTS THE ARCHITECT



By Darwin S. Hatch

THERE are a number of problems to be considered in planning a building for the housing of one's own motor cars that are not apparent at first glance. The question of first importance obviously is that of size and depends primarily upon the number of cars the garage is to contain. We cannot say that since the ordinary seven-passenger touring car takes up a floor space of, roughly, 17 by 6 feet the question of size is answered. There should be supplied plenty of room for storage of adequate supplies and tools with the stationary equipment that is always found necessary. This leads to a still further requirement, that of space for the care of the cars, the cleaning and adjustment that daily use will necessitate.

A decision should be reached at the outset as to just what stationary equipment is needed; a turntable, repair pit, work bench, tool locker, oil reservoir, gasoline tank and pump, washing arrangements, floor drainage and the lighting and heating arrangements. In the class of buildings for owners who expect to employ a chauffeur, arrange-

ments must be provided for housing him and often his family or some of the other servants as well. Nor is the question of size and arrangement the sole consideration presented to the builder of a structure of this kind. One of as great importance to most and of almost paramount weight to those who live in the more exclusive neighborhoods is the æsthetic side of the question. The exterior appearance should be such as will harmonize with the other buildings in the establishment of which it is a part as well as with those in the immediate vicinity. In general the methods used to secure this harmony of design consist in the employment of the same materials in the exterior construction of the garage as are used in that of the house. Red brick walls and tile roof in the residence, nearly always call for the same construction in the smaller buildings, as well as the reproduction of the general outline.

Although the buildings for housing the cars and their attendants, illustrated on the following pages, range in cost from a few hundred dollars to several thousands, the question of cost was a secondary consideration, the chief object being a happy union of utility with harmony of design. The garages illustrated show some of the ways in which this has been attained in Chicago.

In one section of Chicago, especially, are many fine examples of the architect's work. Along Sheridan drive on the north side of the city and 7 miles from its heart, bordered on one side by the lake and fringed by handsome residences, will be found in greatest profusion the homes of the highly polished limousines and the speedy roadsters that throng the boulevards.

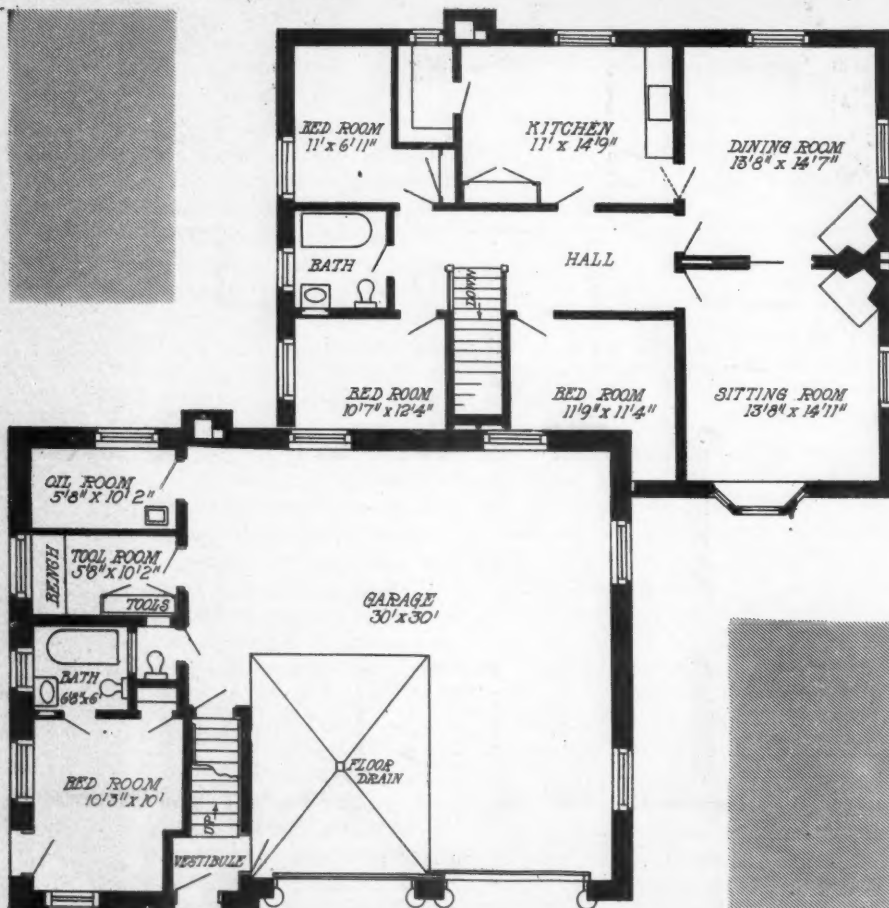


WHEELER GARAGE NOTABLE

One of the most notable of Chicago's private garages is directly at the head of Sheridan drive and the dazzling whiteness of the place attracts the eye from far down that thoroughfare. This garage is a part of the establishment of Albert G. Wheeler and is worthy of attention not only on account of its completeness, but even more so in the manner in which it has been made to add to rather than detract from the beauty of the place as a whole. The residence is constructed of white marble and granite, with a green-tiled roof, and in the garage the same



GARAGE AND RESIDENCE OF A. G. WHEELER

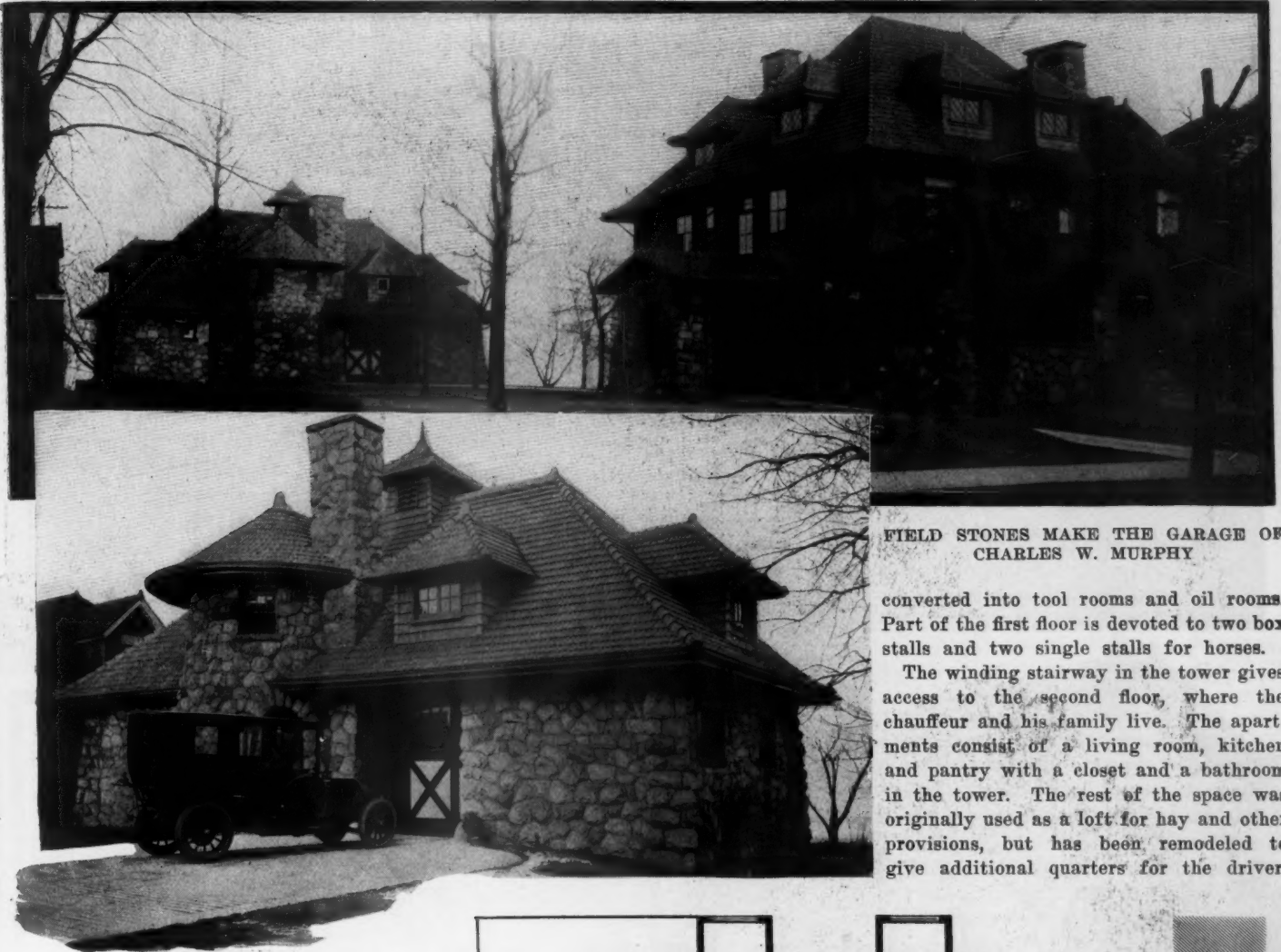


FIRST AND SECOND FLOOR PLANS OF THE WHEELER GARAGE
CARBYS W. ZIMMERMAN, ARCHITECT

materials are used to make it seem from a distance a smaller replica of the main building. A porte cochere extends from the west side of the house over a curved cement drive which leads to the garage.

As a means of accommodating the cars and driver the garage itself is one of the finest in the city. It is a two-story building about 44 by 34 feet in size. A space 30 feet square is reserved on the first floor for the cars, four or five of which may be accommodated there. The walls are of white tile and two sliding doors give entrance from the drive. A chain hoist for handling the heavier parts of the cars hangs from the ceiling. In the cement floor is a drain and over it the overhead washing connections are hung. Opening off the main room are the oil and tool rooms, each about 6 by 10 feet in size, and the latter equipped with a bench at one end.

The second floor constitutes a very cozy six-room flat occupied by the driver's family. It comprises a front room, dining room, kitchen, three bedrooms and a bath. A hot water heater in the basement supplies both the garage and the residence. Private telephones on both floors connect with most of the rooms in the residence. The first and second floor plans were prepared by Carbys W. Zimmerman.



FIELD STONES MAKE THE GARAGE OF CHARLES W. MURPHY

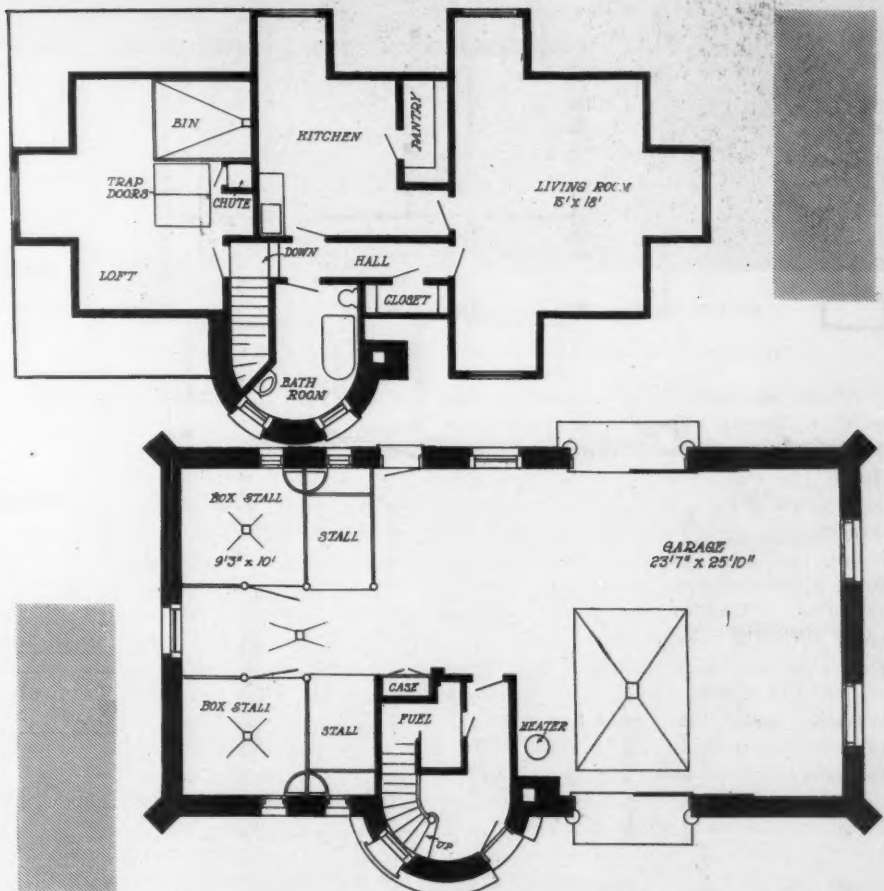
converted into tool rooms and oil rooms. Part of the first floor is devoted to two box stalls and two single stalls for horses.

The winding stairway in the tower gives access to the second floor, where the chauffeur and his family live. The apartments consist of a living room, kitchen and pantry with a closet and a bathroom in the tower. The rest of the space was originally used as a loft for hay and other provisions, but has been remodeled to give additional quarters for the driver.

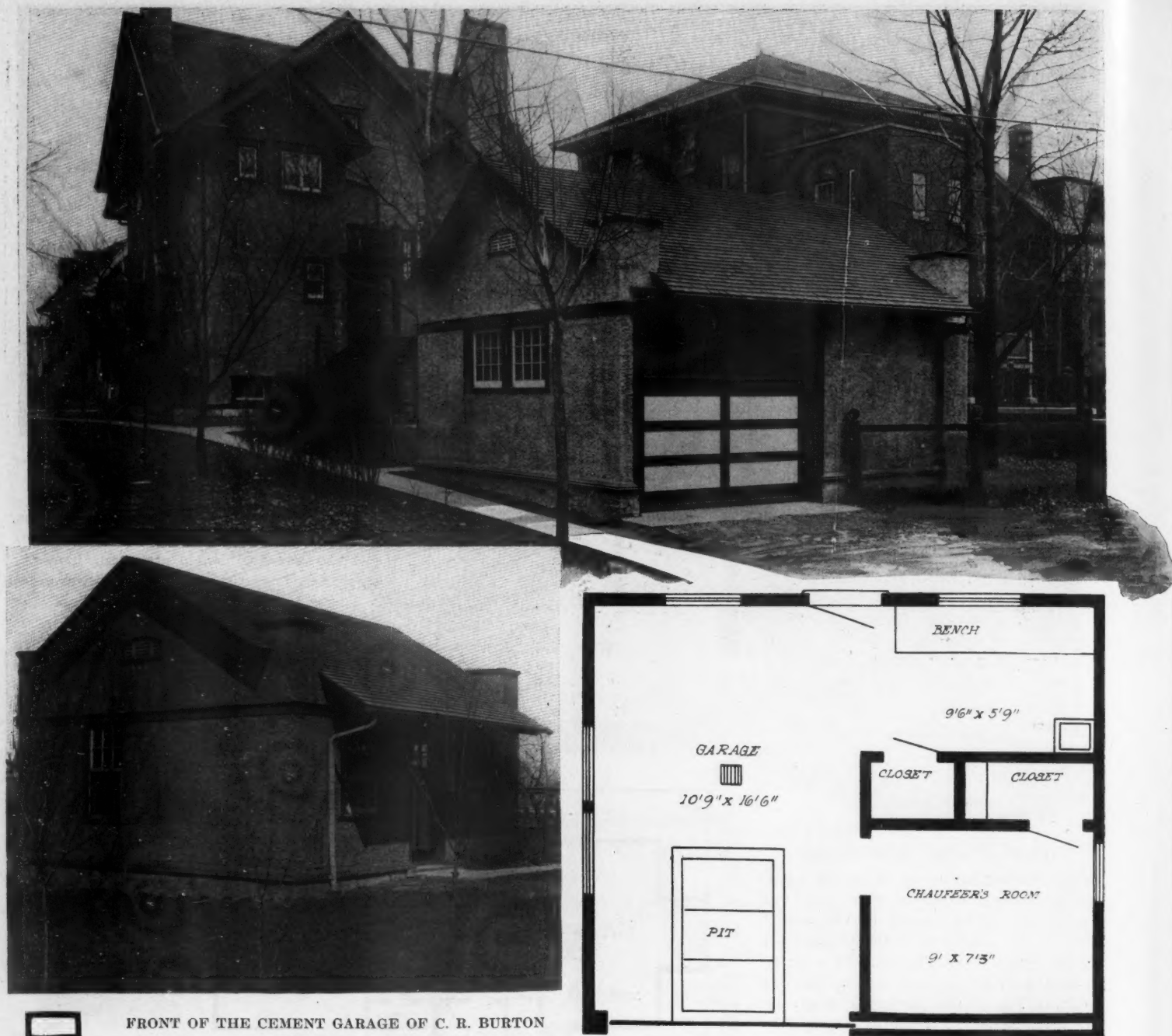
STONE STABLE MODERNIZED

The modernization of a stable to fit it for housing motor cars is very well exemplified in the garage of Charles W. Murphy, the president of the Chicago National League baseball club. This garage is located at his residence, 6157 Sheridan boulevard, and was designed originally for Mrs. Mary D. Thiel as a barn for horses and carriages. The first and second floor plans shown are taken from the plans of the architect, Myron H. Church, and the portion labeled garage was originally intended for a carriage room. Architecturally the building is in keeping with the residence, as it is constructed of the same large boulders as are used in the lower portion of the residence, and the roof of the green tile corresponds with that used on the larger building.

A drive from the street passes through a covered carriage entrance extending from the house and from there to the garage. The latter is two stories in height with a round tower on the side facing the street. Beside the tower is a large sliding door which gives entrance to the garage room, which is about 23 by 26 feet in size. There is a drain and repair pit in the cement floor for overhauling the cars and some of the small rooms which had been originally partitioned off for harness rooms, feed bins and the like have been



FIRST AND SECOND FLOOR PLANS OF THE MURPHY GARAGE. MYRON H. CHURCH, ARCHITECT



FRONT OF THE CEMENT GARAGE OF C. R. BURTON

VIEWS AND FLOOR PLANS OF BUILDING FOR ONE CAR AND THE DRIVER. MYRON H. CHURCH, ARCHITECT

A less elaborate establishment is that of C. R. Burton at 6338 Kenmore avenue, but taken in connection with the residence, the small garage at the rear adds very much to the appearance of the place. Architecturally it is in keeping with the house, and although not pretentious, affords accommodation for one car and the chauffeur. It is of gray rough-cast cement with the woodwork in dark green and white to conform with the exterior of the house. A sliding door opens on the alley and a smaller door on the side towards the house. It is a one-story affair and was designed by Myron H. Church.

The garage room proper is 10 feet 9 inches by 16 feet 6 inches in size and has a cement floor provided with a drain in the middle for carrying off the water when washing the car. Just inside the entrance is a repair pit for work under

A TASTEFUL GARAGE FOR ONE CAR

the car and which is covered with a wooden floor when not in use. Opening off the garage room is the chauffeur's room 9 feet in length by 7 feet 3 inches in width. A closet opens off of this and another closet in which the oil is kept opens off a small tool room 9 feet 6 inches in length by 5 feet 9 inches in width. In this tool room is a bench for handwork and a hydrant and sink.

In the Stron garage, which is just being completed and is illustrated on page 14, there are several novel features. This is a yellow brick building with a green tile roof and is $1\frac{1}{2}$ stories in height. Two entrances, side by side and each wide enough to admit a car, are closed by corrugated steel roller doors and in the cement driveway

just outside the doors is a turn table. The building is heated by a boiler in the basement, while stairs inside lead to the driver's apartments above. The equipment in the car room consists of a sink, fuel pump, oil tank and lockers, while the tool and repair room is separate. A private phone is connected with most of the rooms in the house.

Narrow alleys and long wheelbases make the catcornered entrance very popular. One of these is illustrated on page 15. This is a two-story building, the first floor of which is red rough-cast cement, while the second story is finished in shingles. Heavy oaken beams above the entrance offer support for the floor above and the apartment on the second story is entered from another side through a porch with heavy concrete arches. The appearance is more that of a cottage than a garage.

The illustrations of the home of H. M. Stevenson at Sheridan drive and Thorn-dale avenue show what may be done in the way of having the garage a part of and yet separate from the house. The architect, George W. Maher, has succeeded admirably in carrying out in the garage the colonial effect prevailing in the house. The covered passageway between the house and the garage gives an impression of unity while allowing them to be entirely separated. The colonnade effect is sustained by two columns between the folding doors of the garage. It is only one story in height, but is large enough to care for three or four cars as well as to provide very comfortable quarters for the chauffeur.

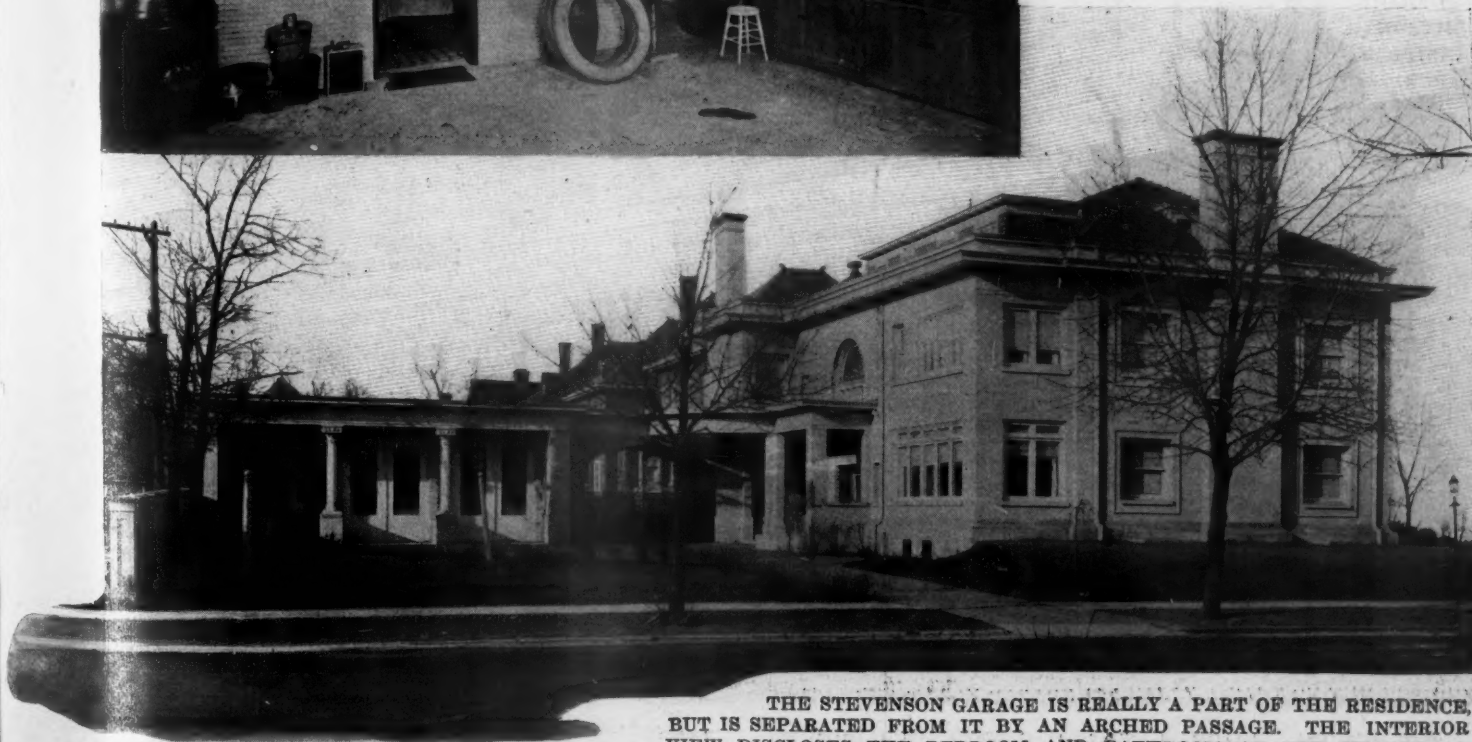
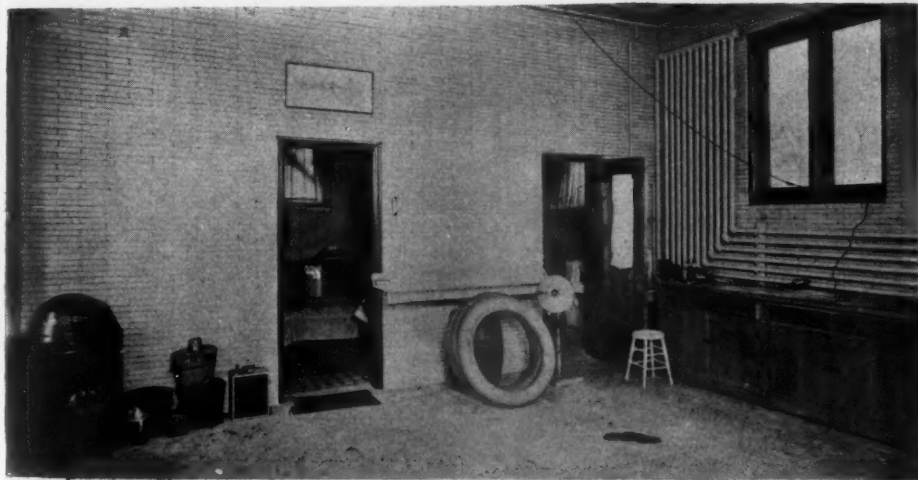
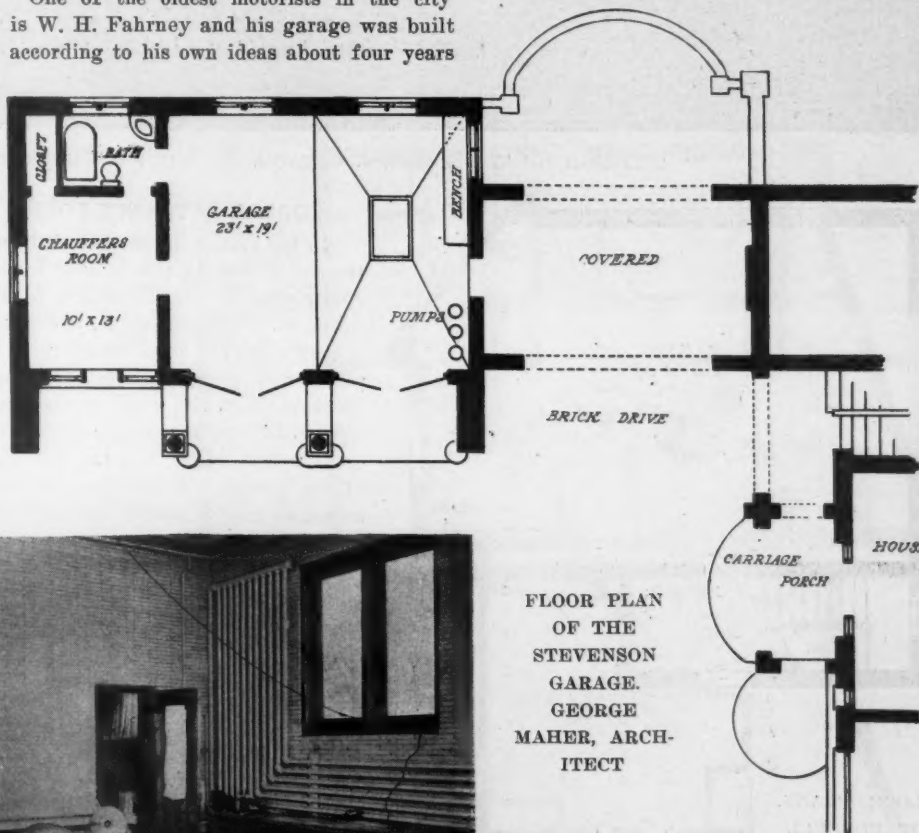
The garage room itself is 23 by 19 feet in size and is equipped with a large bench which is plentifully supplied with drawers and lockers, a portable electric light stand with a reflector for close work around the car, gasoline pump for drawing fuel from the buried tank outside, a sink and washing equipment. This room is lined with yellow tile and all the fixtures such as the bench, lockers, etc., are of polished oak. The chauffeur's room opens off the main garage room and is 10 by 13 feet in size and connected with a closet and bath. A brick drive from

BUILDING GARAGE AS PART OF HOUSE

the street leads past a carriage porch from which the passengers may enter the car. A repair pit in the cement floor of the garage gives access to the under parts of the cars and permits of adjustments to them that would otherwise be difficult. A private telephone in the chauffeur's room connects with the laundry, kitchen, carriage house, smoking rooms and other rooms in the house.

One of the oldest motorists in the city is W. H. Fahrney and his garage was built according to his own ideas about four years

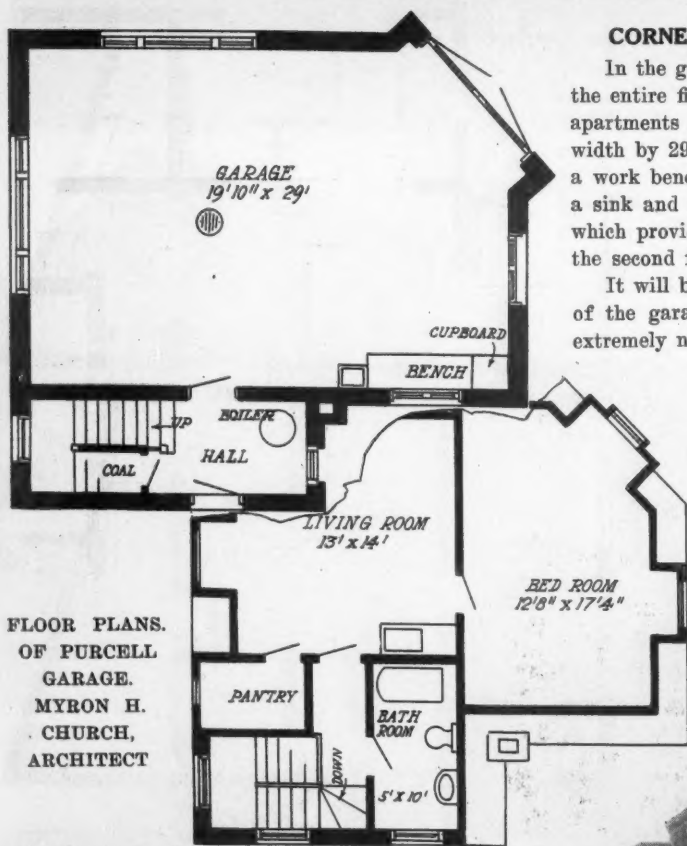
ago at a cost of approximately \$4,000. The building backs up to the shore of the lake upon a small bluff and a tiny slip has been constructed so that his motor boat can be run under the first floor of the garage. The equipment of the building cost about \$1,000 and consists of a forge which cost about \$100, a turntable representing about \$300, while the same amount was expended for the hot water heating system. A repair pit with stairs leading into it has been installed. The residence and garage, with the covered entrance, are illustrated on page 7.



THE STEVENSON GARAGE IS REALLY A PART OF THE RESIDENCE, BUT IS SEPARATED FROM IT BY AN ARCHED PASSAGE. THE INTERIOR VIEW DISCLOSES THE BEDROOM AND BATHROOM OF THE CHAUFFEUR.



INTERIOR OF THE PURCELL GARAGE, SHOWING WORK BENCH AND ELECTRIC AIR PUMP



FLOOR PLANS.
OF PURCELL
GARAGE.
MYRON H.
CHURCH,
ARCHITECT

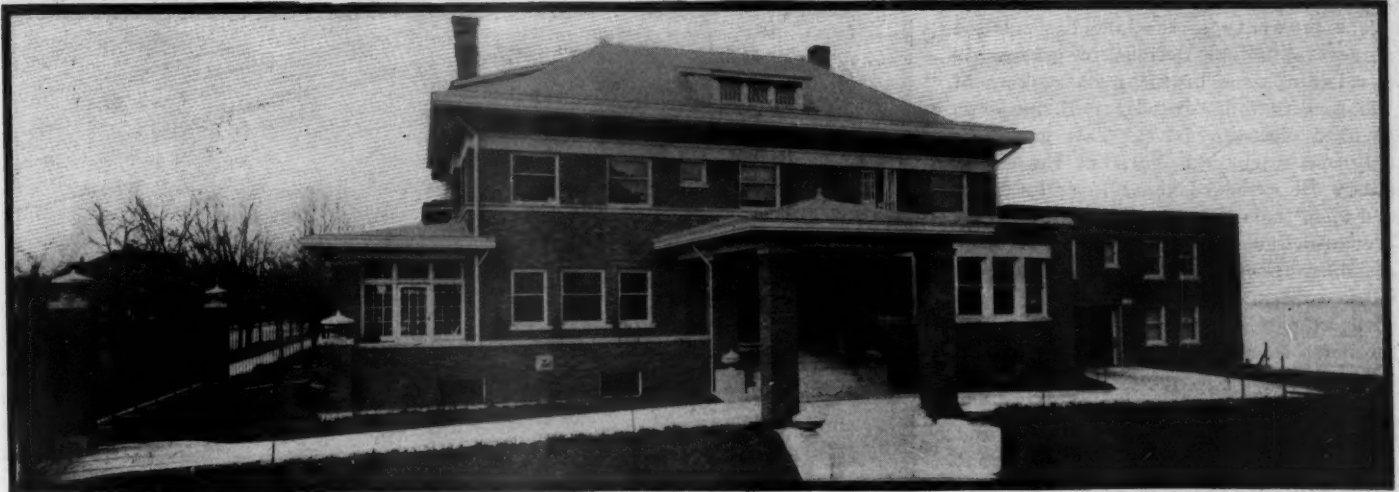
CORNER ENTRANCE FOUND VERY USEFUL FOR NARROW ALLEYS

In the garage of Thomas E. Purcell at Kenmore and Rosemont avenues almost the entire first floor is devoted to the motor cars, while the second floor provides apartments for the chauffeur's family. The garage room is 19 feet 10 inches in width by 29 feet in length, and provides room for several cars. In one corner is a work bench, at one end of which there is a cupboard for tools and at the other a sink and hydrant. In a small room opening off the garage room is the boiler which provides the steam for heating the building. The chauffeur's quarters on the second floor comprise a living room, bedroom, pantry and bathroom.

It will be noted from the first floor plan that the car entrance is in the corner of the garage. In building this garage a problem was presented owing to the extremely narrow alleys, making it very difficult to maneuver a car of long wheel-base when the door faced on the alley. This problem has confronted many builders of garages, but the architect, Myron H. Church, solved it by placing the door on the corner so that cars could enter and leave the garage on an angle with the alley. The interior view will show the arrangement and equipment of this building; the gasoline pump and electric air pump are both time savers.



THE PURCELL GARAGE IS IN KEEPING WITH ITS HANDSOME
SURROUNDINGS



THE VALERIUS GARAGE IS NEARLY HIDDEN BY THE HOUSE

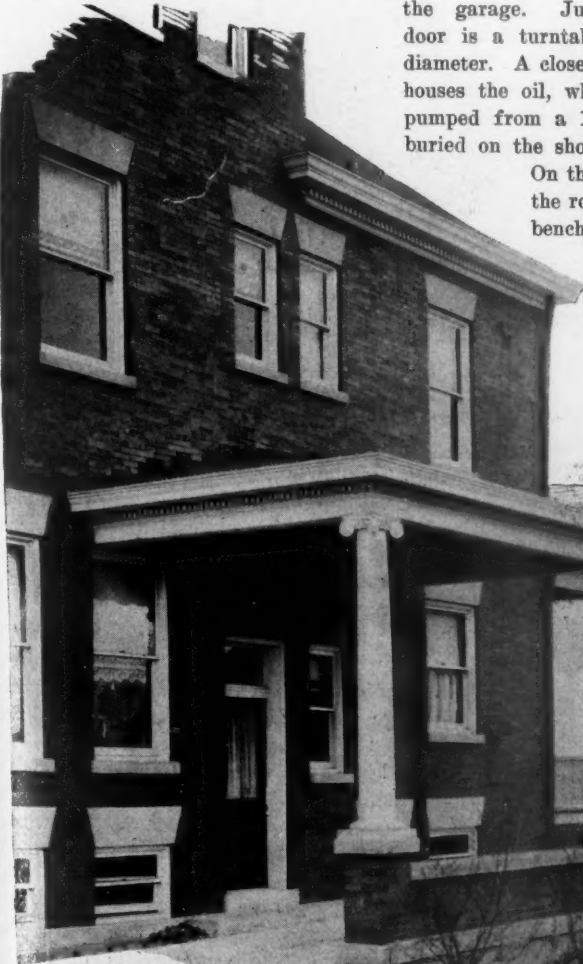
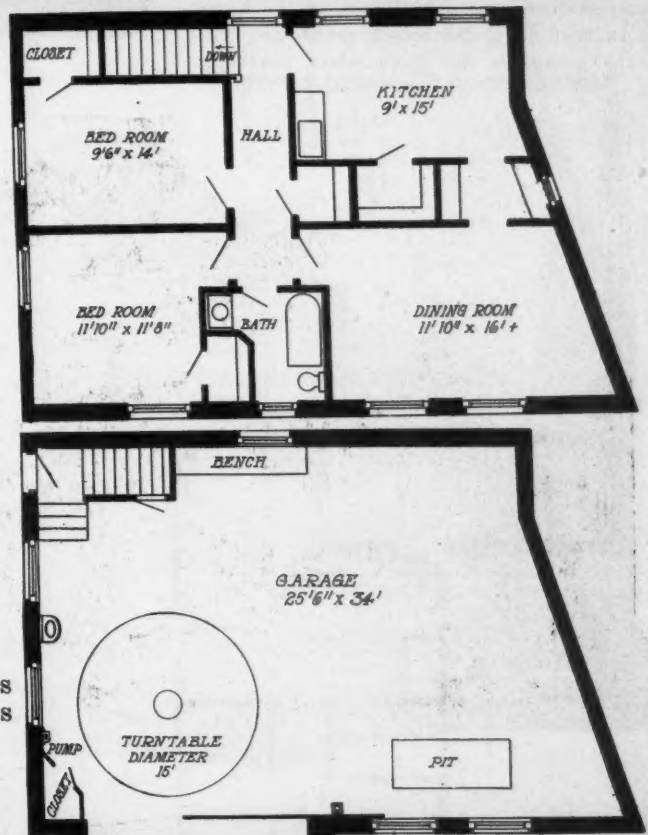
ARCHITECTURAL BEAUTY SACRIFICED TO USEFULNESS

At the home of N. P. Valerius, 6727 Sheridan drive, no attempt at architectural beauty was made in the construction of the garage. As it is directly behind the house and not in view from the street, elegance of design was sacrificed to usefulness. As in most garages in this neighborhood, the entire first floor is devoted to housing and care of the cars, while the second floor houses the chauffeur and his family. A cement drive from the street passes the south side of the house, from which a portico extends for the protection of the passengers, and the drive continues around the back of the house to the garage on the very brink of the lake.

A sliding door gives entrance to the storage and repair room of the garage. Just inside the door is a turntable 15 feet in diameter. A closet in one corner houses the oil, while gasoline is pumped from a 152-gallon tank buried on the shore of the lake.

On the north side of the room is the work bench and locker.

FLOOR PLANS
OF VALERIUS
GARAGE
ALBERT E.
COLCORD,
ARCHITECT

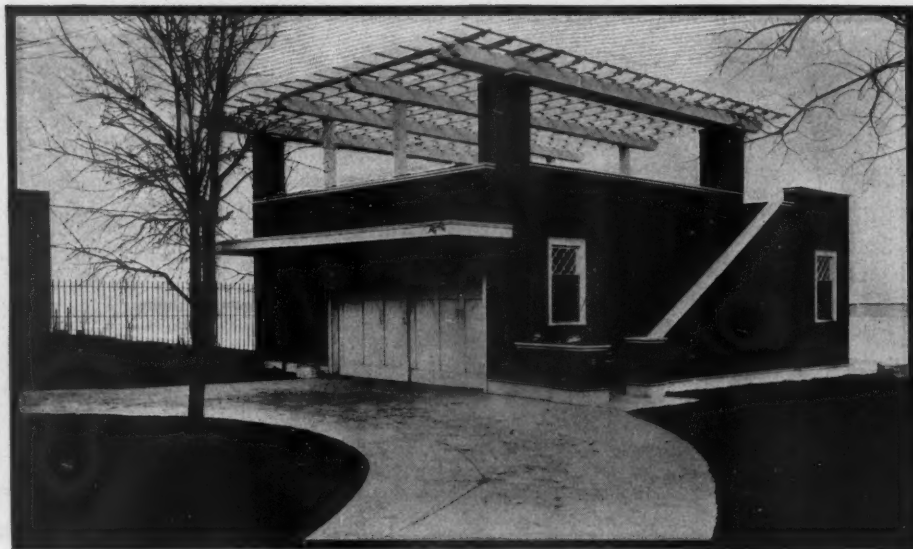


COVERED ENTRANCE OVER DRIVE AT HOME OF W. H. FAHRNEY

GETTING THE PERGOLA EFFECT

The proximity to the lake has resulted in several unique designs in garages in this locality, one of the most striking of which is that of Mrs. Mary E. St. John at 5717 Sheridan drive. This garage is only one story in height, but the corner pillars are extended about 10 feet farther and upon them is built a lattice work roof over which vines are trained. The sides are entirely open and the flat roof provides a very comfortable lounging place with an excellent view of the lake and the north shore.

The roof garden is reached by a stairway upon the outside. The building itself is constructed of cement with a red rough-cast finish, while all the woodwork is finished in white. The red and white finish corresponds with that of the house. Another novel feature in connection with the garage is the drive which enters on



GARAGE WITH ROOF GARDEN ON TOP



THE DRIVE PASSES ENTIRELY AROUND THE HOUSE



A PERGOLA CARRIAGE ENTRANCE

the south side of the house, passes around to the garage in the rear and thence on the north side of the house to the street again, allowing cars to be taken in or out without having to be turned around. A wooden awning extends above the two double doors of the garage and permits the repairs or washing of the cars without interruption by rain or sun.

The most interesting feature in connection with the garage of J. E. Higgins, 6114 Kenmore avenue, is not so much the garage itself as in the pergola leading from the house to the cement building that houses the motor cars. This is about 30 feet in length and consists of two rows of double columns with a lattice work covering over which ivy and other vines are trained. The cars are housed in a combination garage and stable on the first floor, with apartments for the driver on the second. The structure is of brick and cement, with a Japanese tile roof and a view of this building through the pergola gives a decidedly Oriental effect.



A REMODELED STABLE

Another instance of the adoption of a one-time stable to the uses of the motor car is at the home of W. W. Jaques, 5754 Sheridan drive. It will be seen from the illustration that this was originally intended for the accommodation of horses and carriages, as attested by the beam extending from the loft by which hay and other supplies were raised to the second floor. In construction this building harmonizes particularly well with the residence. Like the larger building, it is constructed of brown brick with a green Chinese tile roof and mullioned windows. The garage holds three cars and is provided with a turn table, bench and locker. The walls are finished with light-colored tile and the ceilings with heavy dark beams. A small heater in a separate room from the car room provides the heating arrangement for the building.



AT THE HOME OF W. W. JAKES THE DRIVEWAY LEADS FROM A SIDE STREET

FOR BOTH HORSES AND MOTORS

In not every case has the motor car entirely superseded the horse as a means of conveyance among the residents of Chicago's north shore. At the home of A. M. Johnson, 6240 Sheridan drive, the motor car has been left to fare as best it can in a building originally provided for, and still occupied by, its four-footed rivals. This stable is one of the best examples of barns along the drive. It is constructed of red stones of all sizes, some of them weighing hundreds of pounds, all solidly cemented together. In this construction it harmonizes with the large house to which it belongs. A green-tiled roof with cupolas and ventilators lends a rural air to it, while a large old-fashioned clock over the doorway conveys an impression of antiquity.

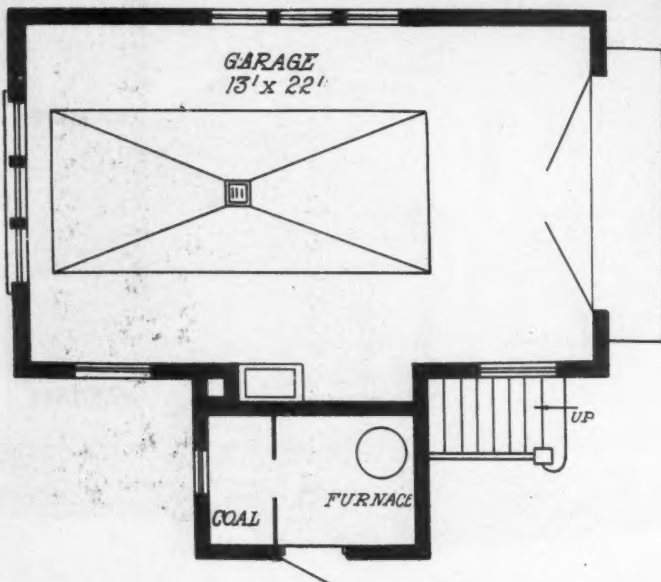
The driveway is arranged to make it easy to enter and leave the garage, without necessitating the use of a turntable. It is in the form of a Y and the car can be backed or run ahead into the building.



COMBINED STABLE AND GARAGE



COVERED ENTRANCE AT THE HOME OF L. G. STILES

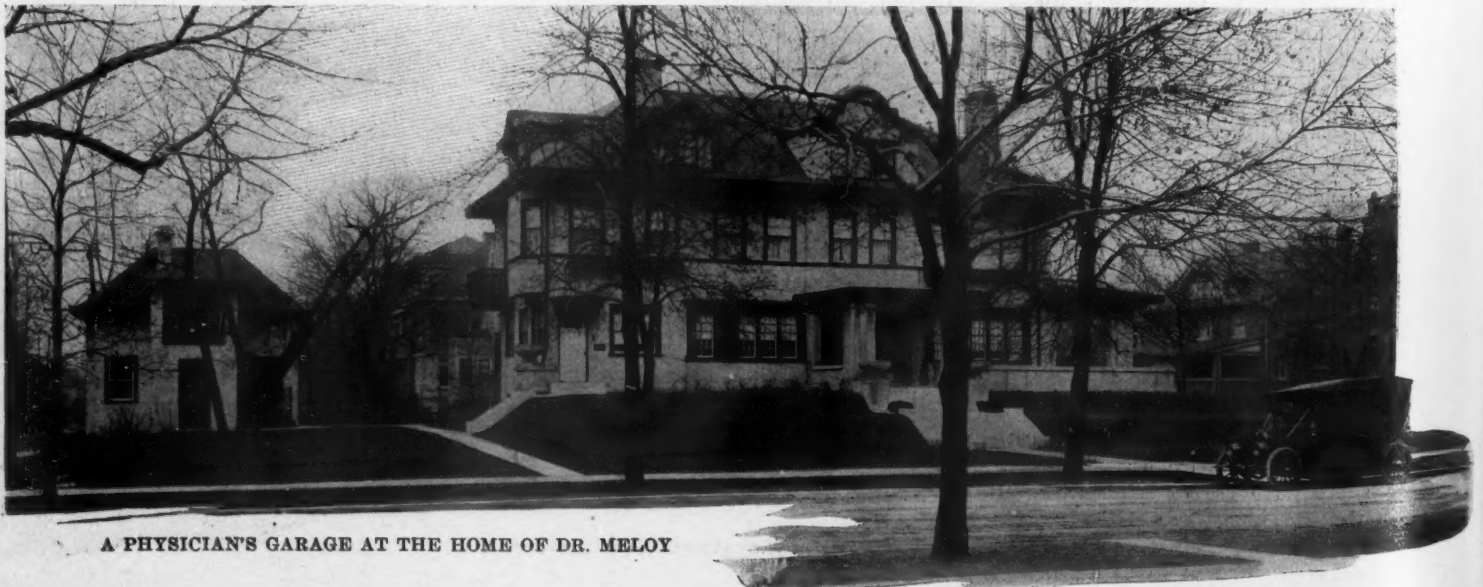


FIRST FLOOR PLAN OF DOCTOR'S GARAGE. ERNEST A. MAYO, ARCHITECT

MOTOR CARS AND THE ELIZABETHAN PERIOD

At the residence of L. G. Stiles, 6235 Kenmore avenue, is a garage in which the Elizabethan style of architecture was carried out to a certain extent. This building is two and one-half stories in height with a very sharp roof. The exterior is weather-boarded up to the second floor and beyond that is stucco with vertical wooden beams and small mullioned windows to conform with the Elizabethan effect in the second floor of the residence. Room for several cars is provided for in the garage room on the first floor, while the second floor and the smaller rooms on the floor above provide servants' quarters. A covered carriage entrance to the house is provided in a novel way. The roof of the front veranda is extended to columns beyond the drive and a flight of steps leads from the drive under this cover to the veranda.

An arrangement especially valuable for a physician is found at the residence of Dr. William W. Meloy at 6302 Kenmore. The doctor's home office is at the southwest corner of the residence, and immediately beyond it is a two-story garage, so that in case of a hurry call he can be in his car and away in a few moments. The garage is of light gray stucco with dark red woodwork to conform with the construction of the house. A cement driveway leads from the street past the north side of the house to the garage and a sliding door on the alley allows the car to be run out on this side so that it need not be turned around.



A PHYSICIAN'S GARAGE AT THE HOME OF DR. MELOY

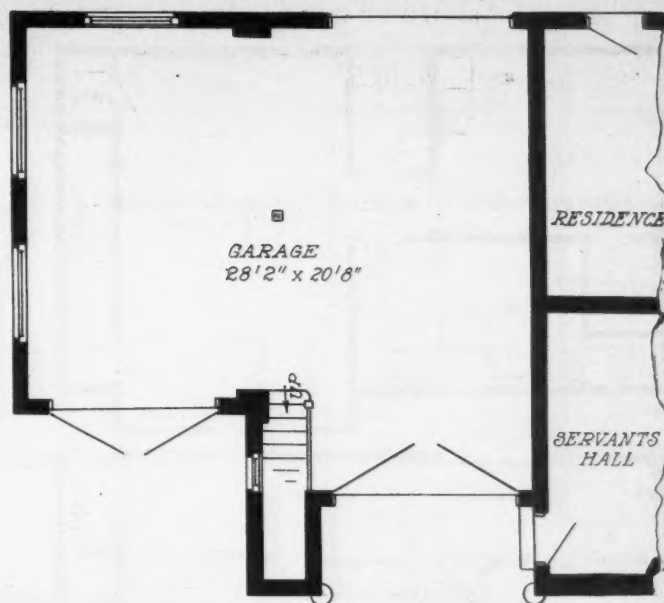


HOUSE AND GARAGE IN THE SAME BUILDING

An instance in which the garage is really a part of the residence is at the place just being completed for Mr. E. B. Shaw at 6627 Sheridan road. The building, which was designed by Marshall & Fox, architects, is rather long and narrow and two stories in height. At the north end is an arched entrance to the garage which is balanced at the south end of the building by the arched windows of the conservatory. The entire building is of stucco finish. At the extreme north end of the building is a square extension which forms a part of the garage. The garage proper is provided with double doors on both the side facing the lake and the side facing the street.

The architectural unities are particularly well preserved in the establishment of C. E. Jaques at 6314 Sheridan drive. The residence here is of red brick with a red tile roof, and the garage is constructed of the same material and on the same general outlines, although on a much smaller scale. A cement drive from the street leads to the double doors of the garage and a double door on the alley permits the car to be driven right through.

Nevertheless, a turntable is provided in the cement floor by which the car can be turned around when desired.



EXTERIOR AND PLAN OF SHAW RESIDENCE. MARSHALL & FOX, ARCHITECTS



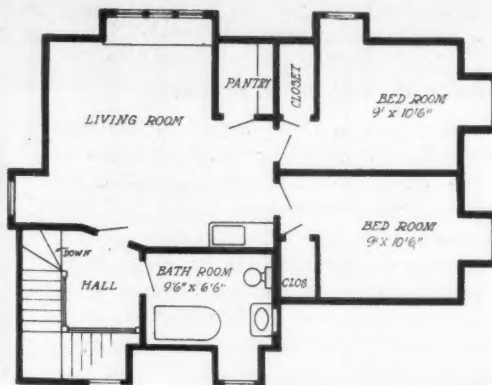
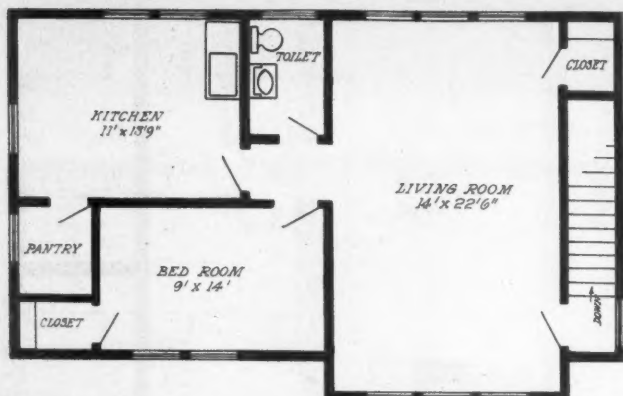
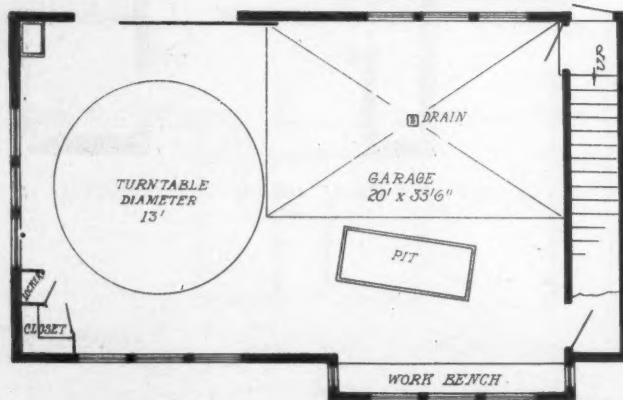
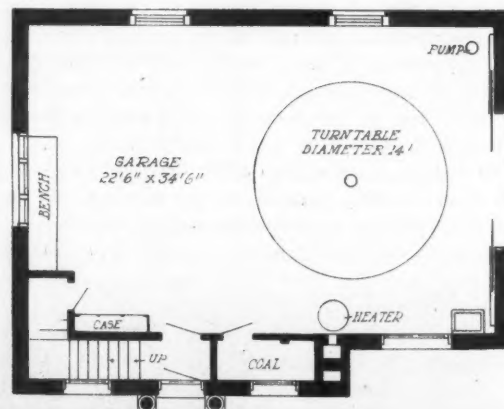
THE ARCHITECTURAL UNITIES PRESERVED IN THE GARAGE OF C. E. JQUES



RESIDENCE AND GARAGE OF ALBERT W. GREEN

SOMETIMES PLANS ARE CHANGED

One instance which shows the pains taken that the garage building shall conform in its architectural features with its surroundings appears at the residence of Albert W. Green, 6326 Sheridan drive. Here the plans as originally drawn up by the architect, Albert E. Colcord, contemplated a two-story building with rough-cast exterior. The original floor plans are shown with a photograph of the garage in its completed form. In order to have it harmonize with the residence, the plans were changed to comprise buff pressed brick exterior and at the same time the height of the building was made one story. The alteration prevented the arrangements that were made for the chauffeur's quarters shown in the second floor plans and no rooms are provided.

FLOOR PLANS OF
DELAVAN
GARAGE. MYRON
H. CHURCH,
ARCHITECTFLOOR PLANS OF
PROPOSED GREEN
GARAGE. ALBERT
E. COLCORD,
ARCHITECT

Not all the beautiful garages are on the north side. That of F. M. Delavan is at Fifty-second street and South Park avenue. This is a $1\frac{1}{2}$ -story brick building, $34\frac{1}{2}$ by $22\frac{1}{2}$ feet in size, with a very flat roof and dormer windows, so that plenty of room is provided on the second floor for quarters for the driver's family. The garage room is equipped with a 14-foot turn table, a case or locker for tools, a gasoline pump from the buried tank outside and opposite the double sliding door is a work bench plentifully supplied with light from a window above it. A small heater supplies both the first and second floors. A stairway from the first floor leads to a small entrance hall, which gives access to an apartment consisting of living room, two bedrooms, pantry and closets. This was designed by Myron H. Church, architect.



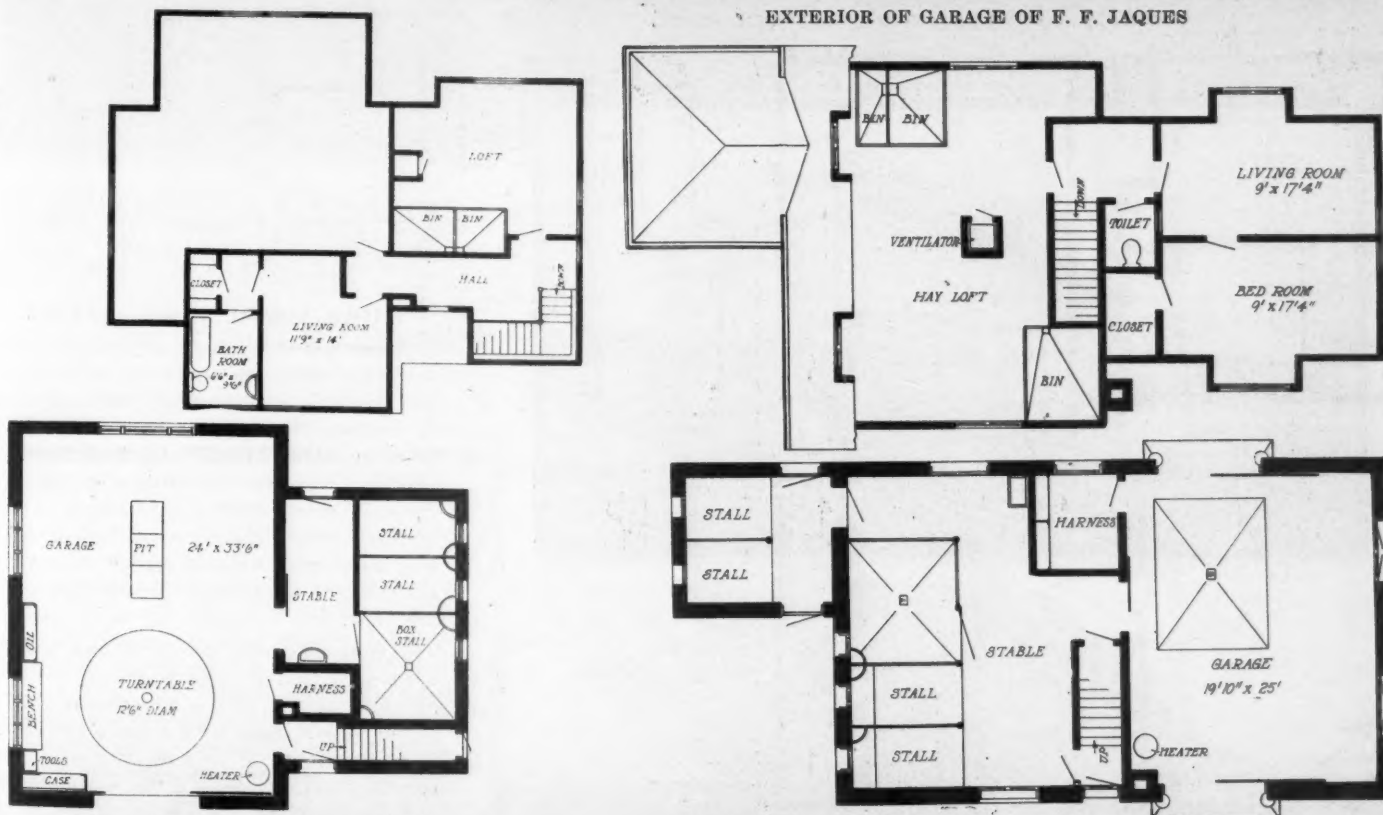
HOW RED BRICK AND WHITE STONE MAY BE USED TO ADVANTAGE

GARAGE SHELTERS HORSES TOO

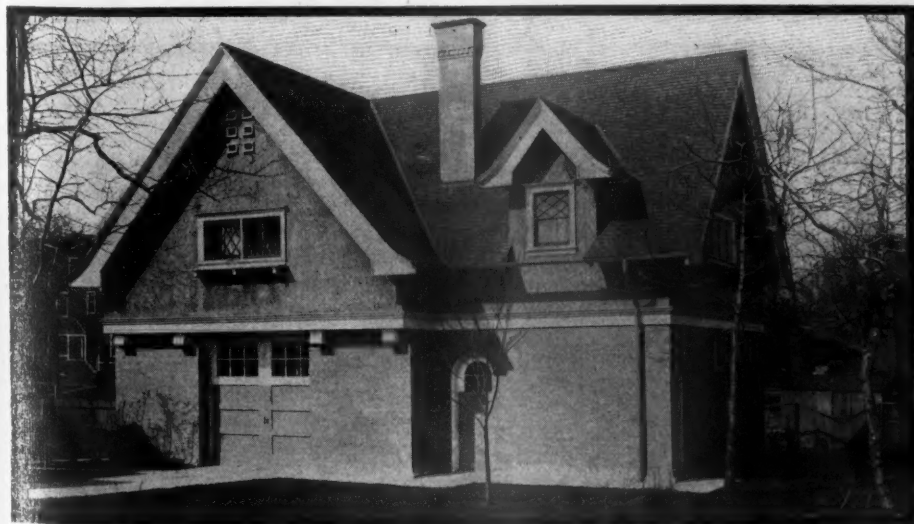
Still another combination of garage and stable is found at 5156 Sheridan drive at the residence of Frank F. Jaques. Among the problems presented here there was the necessity of making the garage harmonize in its architectural features not only with the residence which it serves, but also several garages of the neighbors. The building as a whole does not contrast with the other garages nearby, while the exterior finish of pressed brick below and rough cast and wood above conforms with the finish of the house. The garage room has a cement floor and a drain, while sliding doors at both the front and rear permit a car to pass entirely through the garage. A portion of the second floor above the garage room is devoted to the driver.



EXTERIOR OF GARAGE OF F. F. JQUES



FLOOR PLANS OF THE JQUES GARAGE



PLANS AND EXTERIOR OF STROMBERG GARAGE. MYRON H. CHURCH, ARCHITECT

Another handsome building for housing cars is that of Alfred Stromberg at 5442 Sheridan drive and was designed by the same architect as the Delavan garage. This is one of the class of buildings arranged to accommodate both cars and horses. It is a 1½-story structure, the first story being constructed of pressed brick and the floor above of rough-cast cement. The first floor provides a garage room 33½ by 24 feet in size, equipped with a 12½-foot turn table, oil reservoir, bench, tool cabinet, material case and a covered repair pit, as well as a small heater. The stable portion of the building forms a wing in which are two single stalls, a box stall and a harness room. On the floor above are the rooms of the chauffeur, consisting of a living room and a bedroom combined and a bathroom.



TWO HOMES IN WHICH THE GARAGE DESIGN SHOWS FORETHOUGHT. ABOVE, RESIDENCE OF A. CARLSON. AT THE LEFT, THAT OF FRED S. BULLEN

OTHER NORTH SHORE GARAGES

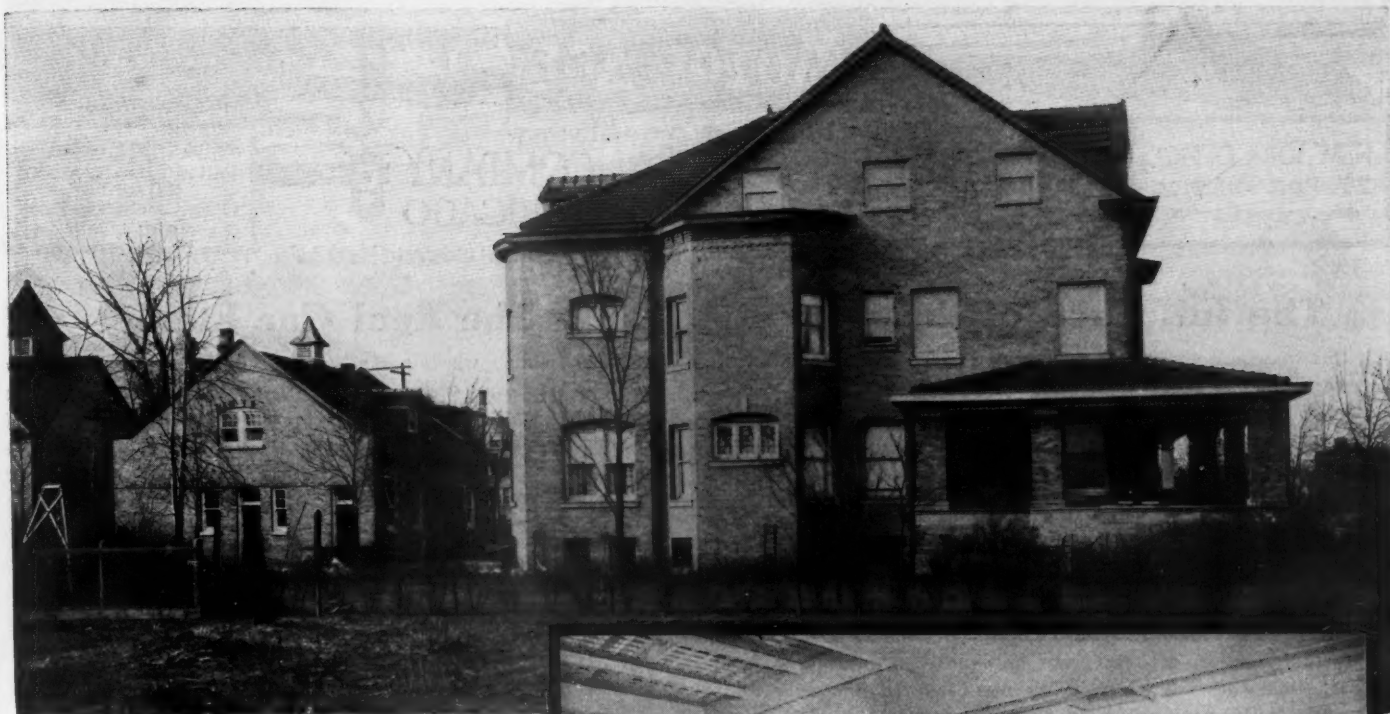
Simple garages often harmonize as well with the house as the more pretentious ones. One of this smaller type is that of A. Carlson at 6030 Sheridan drive. This is a relatively small building, housing only two cars, but providing sufficient additional room for any necessary work around them. The exterior is a rough-cast finish with white woodwork to match the finish of the house. The entrance is on the alley.

A more elaborate garage in this neighborhood is that of Fred S. Bullen at 6143 Sheridan drive. This is a two-story building of yellow brick with a green tile roof. It is about 24 by 40 feet in size and a cozy flat is provided on the second floor for the chauffeur. A cement drive from the street to the garage passes through a portico extended from the porch. In addition to the gasoline cars an electric is maintained and facilities are provided in the garage for recharging the electric. At the same time the batteries used for ignition on the gasoline cars can be charged.

Two cars can be accommodated in the small cement garage of George D. Eddy at 5852 Sheridan drive. The building is just east of the alley, but the doors are on the south side and a cement drive the entire width of the building branches in one direction for the alley and the other to pass the house. The entire south side of the garage may be opened up and the side entrance does away with the difficulty of entering from a narrow alley with a car of long wheelbase. The heating arrangements here are not the best, a base burner in the building being used to supply the heat.



TWO SINGLE GARAGES OF SAME GENERAL OUTLINE, BUT DIFFERENT IN CONSTRUCTION AND COST. THE BOTTOM ONE IS THE STRON GARAGE, WHILE THE ONE ABOVE IS THAT OF GEORGE D. EDDY. DOUBLE DOORS OPEN UP ONE WHOLE SIDE

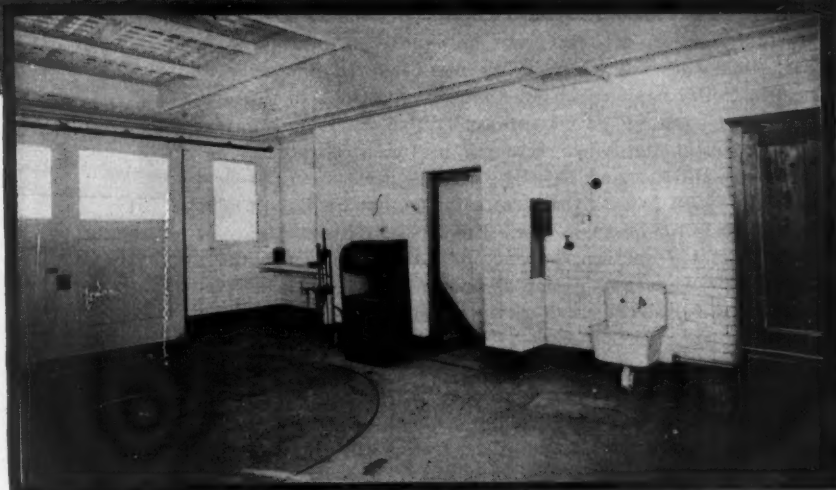


HERBERT GARAGE. THE WALLS ARE FINISHED WITH WHITE TILE AND THE CEMENT FLOOR AND METAL CEILING MAKE IT NEARLY FIREPROOF

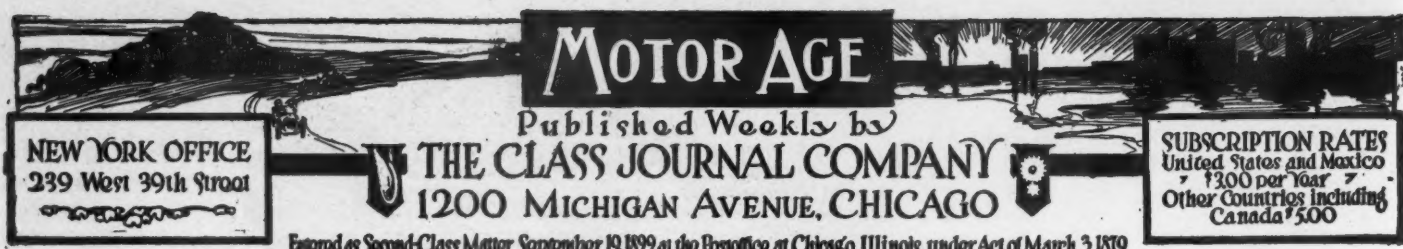
THE CORNER ENTRANCE IS FAVORED

Another of the new garages in this neighborhood is that of K. D. Herbert at 5816 Sheridan drive. Its exterior is not so elaborate as some of the others, but the interior finish is striking. The garage, like the house, is constructed of buff brick with a tile roof. The car room has a cement floor with double sliding doors. Immediately inside the doors is a metal turntable which can be uncovered to form a repair pit. The walls are lined with white tile and the room has a sheet metal ceiling, making this part of the structure practically fireproof. A trap in the ceilings permits a car to be hoisted from the turntable to storage space on the second floor. Among the equipment may be mentioned the fuel pump from the gasoline tank buried under the floor, an oil reservoir, sink for washing and a locker for tools and spare parts. The second floor is divided into two parts, one for the chauffeur's apartments and the other for storage space above a part of the car room. The building is heated by a hot water heater located in a small room outside the main car room.

The corner entrance idea is utilized by Mont Tennes at 6162 Kenmore avenue for housing his Peerless limousine. On the second floor apartments are provided for the chauffeur and his family and the main door to the garage is closed by a corrugated steel rolling curtain. The only other distinctive feature is the position of the sink, which is placed midway in the partition between the main car room and the entrance hall so that access may be had to it from either side. Arrangements are also made for stabling two horses.



TWO BUILDINGS WITH ENTRANCE ON THE CORNER. THE LOWER ONE IS THAT OF MONT TENNES ON KENMORE AVENUE. THE QUARTERS FOR THE DRIVERS ARE LOCATED ON THE SECOND FLOOR IN BOTH CASES



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The Influence of the Car

IN this week's Motor Age are illustrated over a score of modern garages in one suburban district in the residential section of Chicago, in a section which remained a lake-side vacant property owing to the lack of adequate facilities of transportation until the motor car asserted itself. The majority of the garages illustrated have been erected within a few years, in fact many of the best within the last year, during which time the motor car has forged to the fore at an unprecedented pace in such fields.

THESE garages are in a section remote from steam transportation at the present time, the only possible transportation being the elevated line. But it has not been the proximity of the electric trolley or elevated line that has given rise to this condition, but the mastery of city transportation by the motor car itself. The section in which these garages are illustrated is but 8 miles from the center of the city; a locality which was beyond the zone of possibility with the horse carriage, but which is a most accessible section for the motor car. Residentially it could scarcely be excelled, located on the very edge of Lake Michigan, without a suggestion of a great city near at hand and yet within a half-hour ride of the business heart of the metropolis.

SUCH is the field of usefulness and permanency of the motor car; it is modifying and making over cities! it is putting the lake-side home as close to business, metaphorically speaking, as the downtown hotel; it is giving country air to the business man without any loss of time in going to and from his office; it is populating those places that were not considered accessible until the regime of the car became known; it is cutting down the field of the physician in that the motor car has become the private carriage in which the owner goes to and from work instead of being cooped up in a stuffy street car, steam train or elevated train. The lake-side park drive or boulevard is the road to and from the office, with its fresh air, its lake breezes, its pleasant sights, instead of the dusty business street, with its cluttered up pavements, its jostling wagons and its noise, all of which sap the vitality of the business man before he ever reaches his office and so diminishes his productiveness.

THESE garages illustrate what has happened in one section of Chicago, a district not over 1 mile in length and one-quarter mile in width; but it typifies what is happening in a score of other sections and points to the permanency of the car and the real productiveness of its mission. It indicates what is taking place in other cities; it shows how the residential street, with its green lawns and flowers refreshes the business man going to and from work instead of the noise and dirt which weary and exhaust him in the street car traffic. It is Exhibit A of the uplifting spirit of the present century and it is the forerunner of an era in which the energies of those who labor are being conserved in every possible way. The business man going to and from his office in his motor car is in better physical condition than the other man who makes the trip in a suffocating smoker on a steam train or an electric line. Fresh air and sunshine are heritages of the present-day business man which the motor car is bringing into his life and business. It advances him another step in the chief factor of business success, efficiency.

The Real Car Field

THE city man who owns a car and has not taken a country tour extending over a week or 10 days has failed to realize what is the really great field of the motor car. If he has used it during the evening to drive about the city parks and boulevards he has found great good in it, but if he has failed to investigate the adjacent countryside, failed to make his around-the-state tour and travel to nearby cities through the beautiful country, he has missed a great deal of the pleasure that is within the grasp of every car owner.

MANY car owners living in cities are afraid to take to the country on a 10-day tour. Some are afraid lest they get lost before 20 miles from home and have to return; others are afraid of something that might happen. They imagine touring is only a joy that can be entered into if you have a high-priced professional chauffeur and one of the highest-priced cars. They are making a serious mistake. The owner without the chauffeur can today take his week or 2-weeks tour with his family without any danger of being lost or stranded, due to a breakdown or some trivial defect in the car. The man with a car running in price from \$500 to \$7,000 is safe in taking to the country for a week or so in the months of June, July, August, September and October.

COUNTRY touring has been simplified amazingly during the past 2 or 3 years. There was a time when it was a case of taking your life in your hands when you left the city streets and invaded the realm of the farmer. In those days the car owner was afraid he might have to stop every mile or so to lead past the frightened horse of some farmer and perhaps run the gauntlet of being arrested for causing some accidents. This was but one of his country touring nightmares. A still greater one was the road. How could he find the road from Chicago to Pittsburg, Indianapolis, Starved Rock or even the famous Fox River Valley? He might spend a whole day and be lost when darkness overtook him without even the knowledge of a satisfactory hotel.

BUT there were other nightmares: Should a tire blow out how could it be repaired without much loss of time? If the ignition, the lubrication, the brakes, the carburetor or any of the other parts gave trouble how could they be set right? Would it be possible to buy gasoline and oil along the route? These troubles have practically ceased. There is no excuse for losing the road. Route books, such as the Blue books, are now published, which give directions over every main road in a territory as large as New England. With one of these books it is possible to travel for a month or 6 weeks over such a territory without having to stop once and ask a farmer, or any one else, which road to take to reach a certain city. These books are the last word in road directions and in addition give lists of hotels, garages and other information. The local motor clubs have erected sign boards over the main routes giving distances at all points. The country hotel has awakened to the value of the motorist trade and makes a specialty of catering to the tourists minus the holdup prices of a couple of years ago. Cars are today reliable enough so that if put in good shape before starting out and given common sense treatment a 2-weeks tour can be made without the slightest trouble. Gasoline and other supplies can be obtained at practically every village.

Good Roads Wave Strikes the Coast

PORTLAND, Ore., April 8—That history repeats itself is amply proven in the wave of public sentiment that is sweeping over North America for better highways. This sentiment is rapidly crystallizing as far as the western part of the United States and Canada is concerned in two important international trunk line roads, namely, the Canadian highway across the plains of central Canada, through the Rocky mountains to the Pacific ocean, and the Pacific highway continuing this road down the Pacific coast to the republic of Mexico.

These international road projects are not dreams of fancy that never will be realized, but already much work has been done on both of them. While both appeal to the imaginative mind as an almost ideal condition to exist in transportation that does not follow steel rails, the commercial value of these thoroughfares is founded on just as hard a sense of business judgment as any transcontinental railway that ever has been built on this continent.

California the Originator

To California must be given the credit in taking the lead in first providing sufficient funds for its share of the Pacific highway. An \$18,000,000 bond issue is now available for building a system of trunk line highways over the state, and Governor Hiram Johnson has given out within the past 30 days that the Pacific highway from the Oregon boundary to Mexico will be the first to receive attention. Already the Pacific highway from Tia Juana, Mexico, to San Francisco is in splendid condition. Through northern California much of the road will have to be rebuilt.

Oregon, by a popular vote last November, authorized each county to act as a unit in the issuing of bonds for highway construction. For the next 2 years, at any rate, the construction of the Pacific highway will be carried out in that state by a county unit system. Again, there is comparative easy construction through more than half of this state, traversing the famous Willamette valley.

Oregonians are Coöperating

An organization of Portland good roads enthusiasts is now actively coöperating with the promoters of the Pacific highway project in carrying out the immediate construction of this thoroughfare through the state of Oregon. In Washington, \$40,000 has been spent by the state highway department on preliminary surveys, and every foot of the road is surveyed between the Columbia river and the Canadian boundary.

Within the past 30 days the Automobile Club of Seattle has set aside \$500 for the marking of this survey.



April 15—Motor Truck Club's commercial vehicle parade. New York City.

April 12-15—Show at Sioux Falls, S. D.

April 16-23—Show in Prague, Austria.

April 20-22—Three-day run of Lancaster County Auto Trade Association of Lancaster, Pa.

April 22—Redlands annual hill-climb. Redlands, Cal.

April 23-28—Touring car contests in Modena, Italy.

April 29—Quaker City fourth annual social run, Quaker City Motor Club.

May 5-8—Reliability run from Los Angeles, Cal., to Lakeside Inn and return.

May 7—Targa Florio road race, Italy.

May 14—Cataluna cup road race, Spain.

May 16-19—Four-leaf clover endurance run of Automobile Club of Washington, D. C.

May 21—Hill-climb, Limonest, France.

May 21—Ries hill-climb, Austria.

May 25—Touring car kilometer speed trials, Le Mans, France.

May 25—Fuel economy test, Chicago Motor Club.

May 27-31—Five-day tour to Indianapolis of Chicago Automobile Club.

May 28—Hill-climb, touring cars, Le Mans, France.

May 28—Touring car reliability trials in Germany.

May 29-31—Tour to Indianapolis of Chicago Motor Club.

May 30—Five-hundred-mile international sweepstakes race, Indianapolis motor speedway.

May 25 or 28—Meuse hill-climb, Belgium.

June 1—Speed trials, Bucarest, Roumania.

June 4—Hill-climb, Trieste, Australia.

June 18—Voiturette and light-car road races, France.

June 19-25—Glidden tour from Washington, D. C., to Ottawa, Canada.

June 22—Algonquin hill-climb, Chicago Motor Club.

June 25—Grand prix of Automobile Club of France.

June 25-July 2—Endurance contest, Denmark.

July 4-20—Prince Henry tour.

July 9—Mount Cenis hill-climb, Italy.

July 13-20—Ostend week, Belgium.

July 21-24—Meeting at Boulogne-sur-Mer, France.

August 6—Mount Ventoux hill-climb, France.

August 25-26—National stock chassis road races, Chicago Motor Club. Elgin, Ill.

September 2-11—Agricultural motor vehicle show, Roubaix, France.

September 9—Grand prix of Italy, at Boulogne, Italy.

September 10-20—Voiturette and small-car trials in Hungary.

September 16—Touring car competition, St. Petersburg-Sebastopol, Russia.

September 17—Semmering hill-climb, Austria.

September 17—Start of trials of l'Auto, France.

October 1—Gallion hill-climb, France.

October 9-13—One-thousand-mile reliability run, Chicago Motor Club.

Two important bridges were provided for by the late legislature, which now makes it possible to go from the Columbia river entirely across the state of Washington without the use of ferries. These bridges are across the Lewis river, connecting Clarke and Cowlitz in the southern part of the state, and across the Skagit river in Skagit county, in the northern part of the state.

Marking the Highway

The work of making the Pacific highway that is proposed by the Automobile Club of Seattle, will be carried out immediately. A standard sign will be used which will carry the words "Pacific Highway," and the emblem of the Seattle Automobile Club.

Thomas Taylor, minister of public works of British Columbia, already has agreed to immediately construct the Pacific highway from the Canadian boundary into New Westminster, and there is now in use a splendid highway between New Westminster and Vancouver. British Columbia highway officials have also agreed to build the Pacific highway to Hazelton, B. C., which is within 80 miles of the Alaskan boundary, within the next 4 years. It is confidently expected by the promoters of this highway movement that the provincial government will carry this road clear through to Stewart within the allotted 4 years, which is just across the line from the Alaskan border on the south.

Value of the Project

Much has been said in behalf of this highway project as a road that will attract tourists to the Pacific coast and keep them here. Undoubtedly the promoters of the Pacific highway and the Canadian highway have not begun to realize the importance of the tourist travel that will come over these two great highways. However, there is no question but what the farmers living along the route covered by these road projects will participate in greater benefits than any other individuals concerned. He will be given an all-year-round hard-surfaced road to get to market with his products. Isolation is the handicap of the rural population of America today. Hard-surfaced roads will remove the barrier that has separated the producer from the consumer, and the Canadian and Pacific highways, passing through as they do the most thickly populated farming districts of western Canada and the Pacific coast of the United States, will serve a greater number of farmers and will give them a get-to-the-market method that will increase the returns for the products of the soil and reduce the cost of these same products to the consumer by the partial elimination of that big item, freight. It is this sort of an argument that has won so many friends for the project among the farmers out this way.



Race a Test of Cylinder Area Theory

Rule Adopted for Boulogne Road Event Will Allow Competition of Standard Four-Cylinder Cars of European Manufacture—Already Thirty-one Entries Have Been Received for It

PARIS, April 3—With a cylinder area of 3 liters, equal to 183 cubic inches, the light-car race at Boulogne next June promises to be one of the most exciting and keenly contested long-distance speed tests France ever has known. The race has appealed to manufacturers from the beginning, for it admits practically standard four-cylinder cars of 3 to 3½ inches bore, and it is this size of motor which comprises about three-quarters of present-day European production. The cylinder bore rule has been dropped, not because of any inherent defect, but because it would have brought into the race cars of abnormal stroke having no relation to standard models; with the displacement rule, on the other hand, practically standard models are available. It is worthy of note, however, that the long-stroke campaign has borne so much fruit that even under a displacement rule the average ratio of stroke to bore will be nearly 2 to 1. The point is one of great significance.

Big Field Certain

Although the final closing of entries at ordinary fees will not take place for 2 days yet, more than thirty entries have been fully paid. The nations represented are France, England and Belgium, with every possibility of Austrian and Italian representation being secured later. While the international element is well developed, home competition is keen among Lion-Peugeot, Aleyon, Gregoire and Delage, all four firms having built special motors and secured the best driving talent available. Aleyon, a firm having matched Lion-Peugeot in many a cycle and motor cycle race, is particularly anxious to score in a motor car event, and is now preparing three valveless motors, one of which will be put in charge of Louis Wagner, a one-

time Vanderbilt cup winner; the other in the hands of Page, an old race driver, and the third confided to the firm's chief tester, Barriaux. This is the first occasion on which a sleeve-valve motor has been pitted against a poppet-valve type in a long-distance road race.

Four Lion-Peugeot Motors

Lion-Peugeot is known to have in hand four motors with a bore of 2.9 inches and a stroke of 6½ inches, out of which it is hoped to get 85 miles an hour on the level. The cars will be in the hands of Boillot, Goux, the Italian Zuccarelli, and one other driver. Gregoire intends to make use of its standard model with its stroke shortened to bring it within the rule; the dimensions will thus be 3.1 by 5.9 inches bore and stroke. This firm is paying very careful attention to stream-line forms of the body, and will have as drivers Philippe de Marne, one amateur owner, and two of the factory testers.

Delage, the winner of the voiturette race at Dieppe, has decided to build five four-cylinder models, but to race three only. The fourth will be tested out to the utmost limits and the fifth will be kept in reserve in case of accident at the last moment. Drivers will be Guyot, winner of the Dieppe voiturette grand prix; René Thomas, a former motor cyclist who for the last 2 years has been an Antoinette aeroplane pilot, and Bablot, for several years a Brasier race driver.

It practically is certain Sizaire-Naudin will come forward with a team of four cars having four-cylinder monobloc motors of 6.6-inch stroke and a bore of probably 2.8 or 2.9 inches. The cars will be handled by Georges Sizaire, Naudin and Lebouc, and one other.

Merely with a view of giving a demon-

stration of reliability the Cote company has entered two two-cycle models having a bore of 3½ inches. It is not expected that they will win the race, but their owner will be satisfied if they show the reliability of the two-cycle principle.

Two Belgian Teams

From Belgium there are two teams: Excelsior, with its standard motor of 3.3 by 5.1 inches bore and stroke, with Paul Riviere, Christiaens, Rigolly and one other as drivers, and the Fif company with four cars, the drivers of which have not yet been announced.

For the first time in about 6 years there will be really satisfactory British representation in the French race, the Arrol-Johnston having entered three cars, the Calthorpe a team of three, and the Sunbeam, of Wolverhampton, one car. Other British cars are expected at the last moment. The organizers of the race have received an assurance that Austrian Daimler cars will be entered, and also are looking for teams of Fiats and Opels. It is quite possible, indeed, that the thirty-one cars for which entries have been fully paid will be increased to forty-five or fifty before the date fixed for the final closing of the lists.

Description of Course

The course selected for the race starts from the suburbs of Boulogne-sur-Mer, and is roughly 30 miles round. It is of a most varied nature, comprising absolute straightaways on which the cars should travel at 85 miles an hour, and a few portions of hilly, winding road calling for the use of the change-speed lever. There are no villages on the course, for in order to avoid the town of Desvres a special road has been constructed through the forest land at this point. The full distance probably will be 350 to 400 miles, and the average speed of the winning car is estimated to be not less than 60 miles an hour, with a maximum on the straightaways of 86 to 88 miles.

The regulations governing the French light-car race also have been adopted by the Royal Automobile Club of Barcelona for two races to be run there in May, for a race in Belgium, and for a speed test at Bologna, in Italy. The essential features of the regulations are a cylinder area of 3 liters, 183 cubic inches, a minimum weight of 1,763 pounds, and certain minimum dimensions for the body and width of mud guards.

RACING IN ENGLAND

London, April 1—The conditions which prevailed during the opening meeting of the Brooklands Club were of a wintry nature, snow alternating with sunshine as the races were decided. The sport, however, was particularly good and some high speeds were accomplished. The attendance suggested that the sport is finding more favor than it hitherto has received. There were good fields in most of the events and the handicaps were so framed that some ex-

NEW STRAIGHTAWAY RECORDS ACCEPTED BY A. A. A.

The following changes in and additions to the official record sheet published by the A. A. A. contest board February 1, 1911, are announced:

STRAIGHTAWAY FREE-FOR-ALL RECORDS REGARDLESS OF CLASS

Miles	Time	Driver	Car	1911
20	13:11.92	Burman	Buick Bug.....	Jacksonville, Fla., March 30
50	35:52.31	Burman	Buick Bug.....	Jacksonville, Fla., March 28
150	1:55:18	Disbrow	Pope Special.....	Jacksonville, Fla., March 31
200	2:34:12	Disbrow	Pope Special.....	Jacksonville, Fla., March 31
250	3:14:55	Disbrow	Pope Special.....	Jacksonville, Fla., March 31
300	3:55:33.50	Disbrow	Pope Special.....	Jacksonville, Fla., March 31
81.65	1 hour	Disbrow	Pope Special.....	Jacksonville, Fla., March 28

CLASS B STRAIGHTAWAY RECORDS

Stock chassis, piston displacement and minimum weight 161 to 230 cubic inches

Miles	Time	Driver	Car	1911
5	4:24.13	Tower	Warren-Detroit	Jacksonville, Fla., March 29
10	9:10.52	Tower	Warren-Detroit	Jacksonville, Fla., March 30

231 to 300 Cubic Inches

Miles	Time	Driver	Car	1911
10	8:16.35	Wilson	Cole	Jacksonville, Fla., March 29

301 to 450 Cubic Inches

Miles	Time	Driver	Car	1911
1	40.32	Wilcox	National	Jacksonville, Fla., March 30
5	3:56.82	Wilcox	National	Jacksonville, Fla., March 30
10	8:03.67	Merz	National	Jacksonville, Fla., March 29

citing contests took place. Herbert's 15.9 horsepower Singer was the most successful car, winning the third 76 miles per hour handicap over a distance of $8\frac{1}{2}$ miles at a speed of exactly 76 miles an hour, and obtaining 3 seconds. Arkwright's Benz was another good performer. From the 33-second mark it won the 100 miles per hour handicap at 86 miles an hour and the sprint handicap at 79 miles an hour. A new competitor was R. W. A. Brewer's 14.5 horsepower Multitwo, which won the 60 miles per hour handicap.

Some excellent sport is promised at Brooklands in the near future, for the Fiat company has constructed a car which is expected to obtain a speed of more than 140 miles an hour. Felice Nazzaro probably will pilot the car, which is being sent to England for tuning up purposes at the Brooklands track and with a view to the beating of Hemery's record of 127 miles an hour. Later in the year the big Fiat is to be shipped to America to contest events in the United States.

ORGANIZE FOR NATIONAL CIRCUIT

New York, April 8—The National Motor Contest Circuit has been incorporated by A. R. Pardington, Howard Marmon, S. M. Butler and R. P. Hooper and has opened offices at 437 Fifth avenue. The object of the new association is to organize and promote the proposed national racing circuit. Mr. Pardington has been made managing director and will referee at all meets on the circuit. F. J. Wagner will be official starter and F. E. Edwards will officiate as chairman of the technical committee. Mr. Pardington reports it is likely the circuit could be extended to the Pacific coast and extend well into the winter.

NORTHWEST'S GREAT TOUR OUTLINED

Minneapolis, Minn., April 9—That the tour from Minneapolis to Helena, Mont., during the coming summer, projected by the Minnesota State Automobile Association, has gained great impetus was manifested at the annual meeting of the Automobile Club of Minneapolis, when that body promised hearty co-operation to Reuben Warner, of St. Paul, president, and Louis W. Hill, head of the Great Northern Railway Co., who outlined the proposition and asked assistance from the Minneapolis organization.

The route will cover approximately 1,300 miles of excellent roads after leaving the Red river valley, according to Mr. Hill. Following the roadbed of the Great Northern almost the entire distance, the motorists will have an accessory in the shape of a complete railway train.

In outlining what the tour will bring in the way of pleasure and business features, Mr. Hill portrayed that coming run as the greatest to be held in the country this year, not excepting the national Glidden which leaves Washington, June 19, for Ottawa, Can. It will be run at just the season when grain men will want to look at the

Creates A 24-Hour Speedway Record

Fiat Wins Los Angeles Race With a Mark of 1491 Miles, with Cadillac Second with 1448 Miles—Ten Cars Start in the Long Grind and Seven of Them Finish the Contest

TABULATED RESULTS OF LOS ANGELES 24-HOUR RACE WON BY FIAT

Car	Drivers	6 hours	12 hours	18 hours	24 hours
Fiat	Frank Verbeck—V. Hirsh	367	744	1,125	1,491
Cadillac	George Adair—T. J. Beaudet	365	718	1,085	1,448
Cole	L. Edmonds—John Jenkins	338	664	934	1,219
Cutting	J. D. McNay—C. J. Carter	233	558	864	1,186
Warren-Detroit	S. Miller—G. C. Kelley	290	605	872	1,167
Croxton	S. Spengel—D. Barry	248	533	843	1,153
Schacht	G. Ball—O. A. Walling	293	555	740	1,013
E-M-F	W. J. Lacass—H. Perry	331	608	out in 18th hour	
Velle	Joe Nikrent—G. Benedict	345	616	out in 15th hour	
Cameron	J. Fouch—H. Fouch	124	175	out in 14th hour	

LOS ANGELES, CAL., April 9—Special telegram—The 24-hour race which was run yesterday and today on the 1-mile board speedway resulted in a victory for the Fiat driven by F. Verbeck and V. Hirsh, which covered 1,491 miles in the journey twice around the clock, averaging 62.12 miles per hour. Second was a 30-horsepower Cadillac which was driven by George Adair and T. J. Beaudet, which made 1,448 miles in the 24 hours, averaging 60.33 miles per hour. Ten cars started in the event and seven finished.

This is the first 24-hour event ever run on a speedway in this country and consequently does not rob the Stearns of its dirt track mark of 1,253 miles made last fall by Patschke and Poole. It will be placed in the speed table as a separate mark under the head of speedway records. It will, however, rank as the world's competition record, for the mark of 1,581 miles 1,310 yards, made June 28-29, 1907, by S. F. Edge in a six-cylinder Napier on the Brooklands track in England, was a time trial.

The race was singularly free from acci-

dent and the two leaders made only a few stops to change tires. The Fiat changed six times and the Cadillac four. During the night the Croxton turned around twice on the oily track when the brakes were suddenly applied, which was the closest approach to an accident throughout the race. The Fiat lost 12 minutes because of clutch trouble at the start and changed radiators in the twenty-second hour. The Cadillac had no mechanical trouble whatsoever. The E-M-F ran consistently up to the eighteenth hour, when a hole that was punched in the crankcase put it out. The Velle had similar trouble in the fifteenth hour. The Cole showed plenty of speed but bumped into the Fiat at the start and was forced to change radiators. The Cole was the leader at the end of the first hour, after which the Cadillac went to the front and at the end of the fourth hour was 3 miles ahead of the Fiat, having covered 243 miles in that time. The summary of the race at 6-hour intervals is shown in the accompanying table. It shows that the leaders went faster the last half than the first.

crops and when the banker and business man will desire to view existing financial and commercial conditions.

It is desired that the tour take place either late in July or early August. Indications are that between seventy-five and eighty cars will make the trip. Arrangements have been made whereby these can either be shipped back to Minneapolis for \$50, in case the drivers do not wish to tour to this city at the completion of the journey. The expense of the train for each traveler will be \$1.50 for sleeping accommodations and \$2.25 for meals each day.

C. S. Harrington, who will blaze the trail, also was present. Mr. Harrington will leave on his long trip early in May. According to his present schedule, which will be revised to suit conditions, the first night's stop will be made at Fergus Falls, Minn. The second night control will be at Grand Forks, N. D. The following nights

en route will be at Rugby, N. D.; Williston, N. D., Glasgow, Mont.; Havre, Great Falls and Helena. Minnesota motorists are confident that they will put on a contest that will attract the attention of the entire country.

MOTOR RECIPROCITY ADOPTED

Baltimore, Md., April 10—Reciprocal relations have been established between Maryland and Virginia, West Virginia and New York, the plan advanced by the motor vehicle commissioners of those states having been approved by Governor Crothers. This new policy permits any motor car bearing the license of one of the above states to operate over Maryland roads for a period of 7 days without obtaining a Maryland license. Maryland will be extended the same privilege in those states. The governor has reserved the right to rescind this order in the event that it does not prove feasible.

Engineers Select Dayton for Meet

Mid-Summer Session of Society Will Invade Ohio June 15, 16 and 17—Local Branches Now Being Formed Throughout Country by Big Organization—Monthly Gatherings of Members

NEW YORK, April 8—The midsummer meeting of the Society of Automobile Engineers will be held at Dayton, O., on Thursday, Friday and Saturday, June 15, 16 and 17. Invitations have been received from the Dayton chamber of commerce, the Wright Brothers Co. and the National Cash Register Co. Aviation events and sociability, including the entertainment of the wives of attending members, will be features of the meeting.

The Society of Automobile Engineers is forming local branches throughout the country. The 800 S. A. E. members are scattered over this and foreign countries. They reside in twenty-eight different states in this country. But the membership has been increasing so greatly that there are now sufficient men in each of several cities to justify local organizations of the parent society. In Chicago there are twenty-eight members; in Detroit, 112; in Buffalo, twenty; in New York city, ninety-two; in Cleveland, forty; in Philadelphia, thirty-two. These figures apply to those actually resident in the cities named. Of course, there are a number of members resident in the territory immediately surrounding each of the cities. Meetings of the whole society membership are held semi-annually. The sections being established probably will hold monthly meetings.

At the first meeting of the metropolitan section of the S. A. E., William P. Kennedy was made temporary chairman. Coker F. Clarkson acted as secretary. These two, together with Joseph Tracy, were appointed as members of the organization committee.

TO BE AUTOMOBILE BOARD OF TRADE

New York, April 7—Following the meeting of the board of managers of the Association of Licensed Automobile Manufacturers at the New York headquarters yesterday the manufacturers perfected plans for the formation of an organization to foster the interests of those engaged in the business of manufacturing motor cars, to be known as the Automobile Board of Trade, which will succeed the A. L. A. M. All A. L. A. M. members, it is understood, have signified their willingness to join the new organization, so there will be an initial membership of 100. Others not in the A. L. A. M. also are eligible to membership. It is understood the Automobile Board of Trade is to be in the nature of a protective organization.

At the A. L. A. M. meeting with President Clifton in the chair, Colonel George Pope, on behalf of the show committee,

reported the result of the recent show at Madison Square garden, which exceeded in attendance, in the number of exhibits and in profits, any previous exhibition of the kind. A dividend of 50 per cent was declared and a vote of thanks extended to the show committee.

GARDEN REPORTED SOLD

New York, April 9—It is reported that Madison Square garden has been sold for \$3,400,000, the rumor declaring that Henry Corn, a well-known real estate operator, has exercised an option which he has held for some time. It is declared that this famous amusement place will be torn down and office buildings erected in its place. This, however, will not be done for another year, so it will not interfere with the plans for the 1912 motor car show. The garden covers an entire city block and the site includes 32 city lots. The property was assessed on the 1911 tax list at \$3,190,000, whereas in 1910 it was listed at only \$2,450,000. This increase in the taxation is said to have caused the directors to become anxious to get rid of the property.

OMAHA BUYS FIRE APPARATUS

Omaha, Neb., April 10—A new step in fire fighting in this region was taken when Omaha received its first motor fire wagon last week. That if it proves successful here other cities in the middle west also will purchase them, was indicated at the inspection and trial of the car Saturday. Committees from both St. Paul and Minneapolis were present. The new apparatus is a combination hose and chemical wagon, made by the Seagraves company, of Columbus, O. The car is guaranteed to make 60 miles an hour on a level road, and over half that on a 5 per cent grade. It has an 80-horsepower motor. The equipment consists of the ordinary fire hose, 300 feet of chemical 1-inch hose, numerous extinguishers, one long single ladder, a 20-foot extension ladder, pike poles, ax, lantern, 400 feet of rope, etc. It has a 60-candlepower searchlight, which can be used in fighting fire at night, when the flames themselves do not illumine the building.

TRAFFIC PROTEST BY DETROIT

Detroit, Mich., April 10—Accidents on Detroit streets during the last few days have resulted in a protest on the part of the motorists regarding the crowding of main-traveled streets by large and cumbersome wagons. An effort is being made to secure passage of some amendment to the traffic ordinance which will take wagons and other heavy vehicles off the main

thoroughfares used by motor cars and carriages. The motorists claim that the blocking of crossings which results from the presence of wagons on a street like Woodward avenue makes progress in the rush hours of the day almost impossible.

Police Commissioner Croul, himself a motorist, has received a number of protests, and has considered means of aiding the motorists in their distress. He insists, however, that Detroit's peculiarly troublesome traffic problem is much nearer solution than is the case in any other city of the country, where similar congestion occurs.

Detroit also is likely to have a wheel tax placed upon its statute books. An ordinance has been prepared, levying taxes of from \$1 on motor cycles to \$3, \$6, \$9, \$12 and \$18 on horse-drawn vehicles, according to size. The proposed taxes on motor cars range from \$6 to \$10 on pleasure cars, and larger sums on trucks and taxicabs. The measure is being advocated by the Detroit real estate board, which points out that its operation would ensure a considerable sum for street improvement and repair, the contributors being the users and destroyers of highways.

PROMOTING TOURING SERVICE

Chicago, April 8—The International Motor Car Transportation Co. is the title of a new concern which has been capitalized for \$100,000 and which has for its objects the promotion of a motor service between big cities like Chicago and New York. The idea in rough is that people of means probably will enjoy motor trips of this sort in preference to traveling on trains and that the installation of a fleet of pleasure motor cars would bring good results. Those interested in the motor trunk line are Edward C. Kingsbury, a Chicago capitalist; Charles M. Hayes, president of the Halladay Motor Car Co., Chicago, agent for the Halladay car, and Paul Chubbock, president of the Streater Motor Car Co. Offices have been opened at 905 Majestic building.

The new company has purchased thirty seven-passenger Halladay touring cars and the first of the routes selected is the one between Chicago and New York. It is proposed to begin the service May 20 and regular trips between the two cities will be attempted on a 7-day schedule each way. On each of the cars will be a bonded conductor and experienced driver and when the service begins cars will start at 9 o'clock each morning from each end of the route. Six passengers to a car will be carried and each will be allowed 25 pounds of baggage.

After the service has been put into working order there will be trips from Chicago to Montreal, Chicago to Boston, Chicago to the White mountains, to Philadelphia, Atlantic City and the Wisconsin lake country. The Chicago-New York route will run by way of Valparaiso, La Porte, South Bend and Goshen to Toledo;

then through Ohio to Cleveland; from Cleveland to Buffalo, including a stop at Niagara Falls, then along the Erie canal route across New York state to Albany and then down the Hudson to New York. Later on in the summer a camping trip from Chicago to Denver will be made, each passenger pledging himself before the start not to sleep in hotels.

WAR SHOWS CAR'S UTILITY

Torrean, Mexico, April 8—The use of motor car freight wagons for the transportation of ores and supplies in the remote parts of the states of Chihuahua, Durango and Sonora is becoming general. The recent interruption of railroad traffic caused by the destructive tactics of bands of rebels created a necessity for other means of transportation for use in emergency and rush orders were placed for freight motor cars by a number of mining companies. In some of the mining districts a regular freight service is carried on by these machines.

REHEARING OF WEED CASE ORDERED

Chicago, April 12—The United States circuit court of appeals yesterday granted the petition for a rehearing of the litigation between the Excelsior Supply Co. and the Weed Chain Tire Grip Co. and set the date for April 20, when the validity of the Parsons patent will be discussed. This is the case in which Judge Grosscup declared the patent invalid, which decision was handed down last January. The Excelsior suit is a test case and was tried out at great length in the United States circuit court. A decree was rendered by Judge Sanborn a year ago affirming the patent in all particulars. The Excelsior company prayed an appeal from this decision and in January the United States circuit court of appeals rendered an opinion holding the patent invalid upon a single point, namely, the anticipation of an old patent. A petition for rehearing was immediately filed, which was passed upon yesterday.

RUN FOR INDIANA CARS

Indianapolis, Ind., April 10—Plans for a tour of Indiana-made motor cars were discussed at a meeting of Indiana manufacturers held tonight. It was proposed that the run be confined exclusively to the forty-three Indiana manufacturers of motor cars, and that each be permitted to enter one or more cars. It was pointed out such a run would be of vast advertising importance and that at the same time there would also be a test of cars, which would be run on a slight competitive basis by the promoters.

Paul P. Willis, secretary of the Indianapolis Trade Association, is the originator of the idea, and, if run, the tour will be under the auspices of the Indianapolis Automobile Trade Association. While a number of routes have been discussed, a route that meets with considerable approval would start at Indianapolis, running to Columbus, O.; southwest to Louis-

A. A. A. Favors Federal Road Aid

Meeting of Executive Committee in New York Devoted to Discussion of Pertinent Subjects—Highways Come in for Considerable Attention—Report on Progress of Registration

NEW YORK, April 8—Federal aid in road building was the most important subject discussed at the April meeting of the executive committee of the American Automobile Association. Throughout the entire country highway improvement is commanding greater attention than ever before, and the motorists have learned that much of the work connected with the betterment of road traveling conditions comes to them because of their intra-state and inter-state touring.

President Robert P. Hooper presided at the meeting, and, following the report of Chairman A. G. Batchelder of the executive committee, who recently made a visit to western, Pacific and southern A. A. A. state bodies and clubs, recommended that the good roads board outline a plan looking forward to the advancement of the federal aid idea. Chairman George C. Diehl and his associates will give the subject immediate and thorough attention, so as to report at the next meeting of the general committee.

Never before has there seemed to be such unanimity for federal aid, and this undoubtedly has been brought about by the astonishing increase in inter-state and transcontinental touring. Reference was made to the fact that of the guests who visited one of the leading White mountain

resorts last year, over 93 per cent arrived in motor-driven vehicles. The southern, western and Pacific states believe that their scenic advantages deserve a similar patronage, but this can only become possible by road building, in which the government must of necessity help, in states sparsely settled and having few large cities to carry the burden of the expenditure.

For the legislative board, Chairman Charles Thaddeus Terry reported that the federal registration measure, which has made such marked progress in the recent congress, may be re-introduced at the present special session, though it is not expected that real work will be renewed until the regular session in December next.

Powell Evans, Philadelphia, and W. E. Metzger, Detroit, were added to the executive committee.

To represent the A. A. A. at the June meeting of the International League of Touring Associations, to be held in Geneva, Switzerland, Mr. Evans was designated, and he will take with him the invitation of the American national organization to hold the 1912 gathering in the United States.

The second week in June was designated as the period during which the orphans will be given their annual treat by the various A. A. A. clubs all over the country.

ville, Ky.; west through Vincennes to St. Louis; north through Peoria, Ill., to Chicago; east to Fort Wayne, and then return to Indianapolis.

Some slight competition will be arranged in connection with the run. This competition may be confined to checking in and out of certain controls on time, offering prizes for the cars making the best showing in this direction. It is planned to

GLIDDEN CASE POSTPONED

New York, April 10—The legal fight for the possession of the Glidden trophy which started in Judge Marian's court in Brooklyn last Wednesday has gone over to May 7. After going over most of the testimony offered by both the American Automobile Association and the Premier company on Wednesday, Thursday and Friday of last week the case was adjourned.

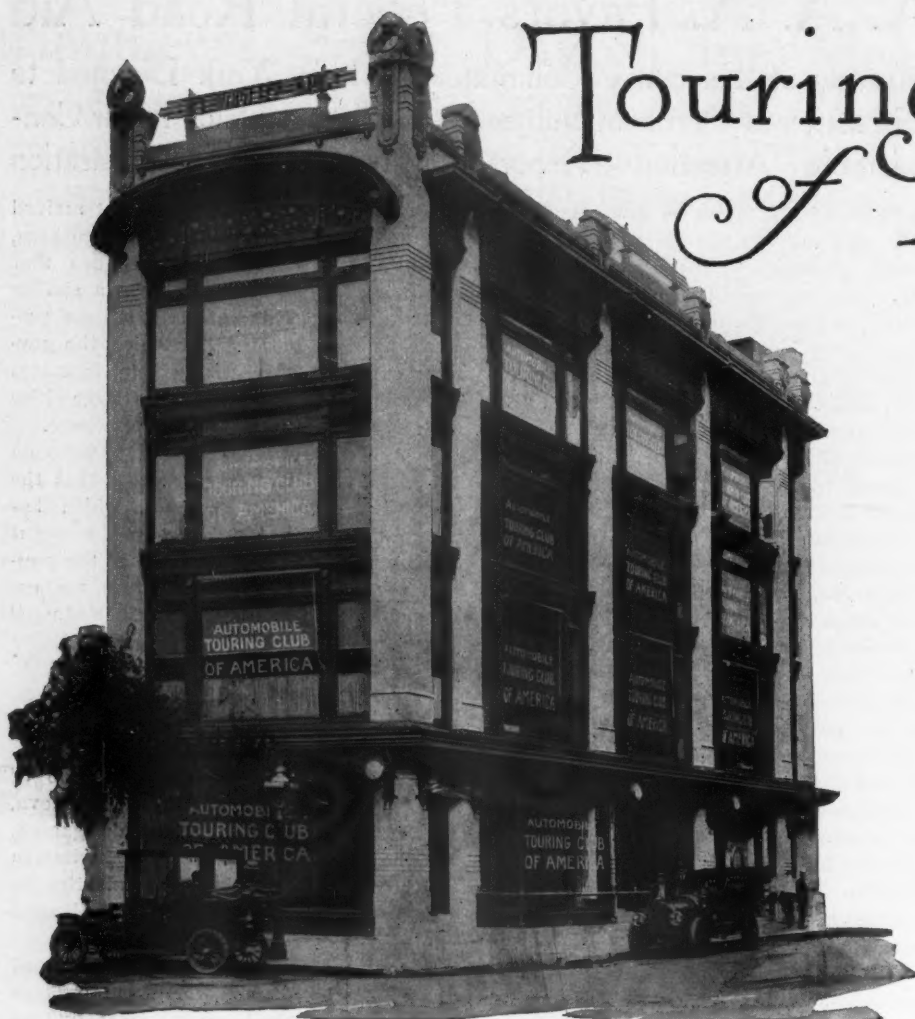
VELIE TO EXPAND

Moline, Ill., April 10—The Velie Motor Vehicle Co., of Moline, Ill., has filed a trust deed for \$300,000 with the county recorder of Rock Island county. The deed is made out in favor of the First Trust and Savings Bank of Chicago and is secured by a mortgage. It is stated in a

prelude to the deed that the \$300,000 is to be used by the company in carrying on and extending its business. The loan is to be retired at the end of 10 years, with the provision that this time limit may be shortened at the pleasure of the mortgagor. It is understood that the \$300,000 is to be used in fitting up the new Velie factory described in the December 15 last issue of Motor Age as well as in improvements on the main factory and in the manufacture of trucks. The new factory covers a ground area of 9 acres, cost \$160,000, and is intended especially for the manufacture of motors and clutches, the former of which have up to the present time been bought of the American and British Mfg. Co., of Bridgeport, Conn.

JAMESON LEAVING STODDARD

Dayton, O., April 10—C. S. Jameson, for several years sales manager of the Dayton Motor Car Co., of this city, has resigned and will sever his connections with Stoddard-Dayton interests on or about June 1. Mr. Jameson has been associated with this company throughout its entire period of its rise in the motor car field and has had entire charge of the domestic and foreign sales, as well as all of the agencies.



NEW YORK OFFICES OF TOURING CLUB OF AMERICA AT SEVENTY-SIXTH STREET AND BROADWAY

TOURING is gaining rapidly in America, and the coming season will witness a greater number of touring parties traveling through different parts of the country than any previous season.

It is true that many car owners living in large cities have not been 100 miles outside of the city since they purchased their cars. The reason is apparent—they are afraid to go. With some it is a case of being afraid of getting lost by not knowing the roads, not knowing at which corner to turn, not knowing the mileage to the next town, not knowing where to get the requisite information, and not caring to waste time upon an uncertain venture.

It is an accepted conclusion that if the public know where to tour, and when, and how, then they will tour. Practically every car owner has at one time or another dreamed of a week's trip through the home section of his country, through New England, through Pennsylvania, through the central west, or through the south. But they have hesitated because they were uncertain of the roads, uncertain regarding hotels, and in many cases uncertain regarding their car.

Thanks to the progress of the American manufacturers, many of these uncertainties have vanished. The car is a known

quantity. Whether an \$800 car or a \$5,000 car, it will give satisfaction on a tour of a week or so if given rational care. With a reliable car, then, one of the greatest obstacles to country touring has been removed. It now remains for the others to be eliminated one by one.

The furnishing of reliable touring information is one of the greatest incentives to touring. Throughout the past 3 or 4 years the Blue Books have given

Touring Club of America

much information on routes from the Atlantic to the Mississippi. There are at present four of these volumes covering different sections of the country, and in each are thousands of miles of route directions obtained by cars sent over these roads for the sole purpose of getting the routes. These routes are arranged in sections, according to the touring topography. Information is given on the sections and also on the particular routes in each. In addition to this is much historic information which adds zest to the route. With these Blue Books it is possible to tour for weeks continuously in one section of the country without having to stop once to inquire from the farmer along the road which is the correct road to take to a certain town and how far it is. These are all given in the book.

Work of Touring Club

With a view of still bringing the touring information closer to the car owner, the Touring Club of America, with headquarters in New York city, was organized some time ago. This club has for its object the collecting of information for touring on all sections of the country and the distribution of this information to its members. Although the headquarters of the club are in New York, branches are to be opened in many of the leading cities throughout the country, so that Oklahoma, Alabama and Oregon will be as close to the source of information as Ohio, Iowa, or Kentucky. These branches will be depositories for everything in the line of touring information from route books with their numerous maps to the latest reports on road conditions in various parts of the country.



WAITING ROOM FOR TOURISTS SEEKING INFORMATION

The work of the Touring Club of America extends from the Atlantic to the Pacific, and its usefulness will only depend on the energies of its officers. There are today approximately 600,000 cars owned in America. At least 100,000 of these will at one time or another during a season make some little excursion into the country. Two hundred thousand of them would take country excursions if they knew where to go, how to prepare to go and the definite route to follow. The Touring Club of America has a possible field not only in the 100,000, but it can reach 200,000, and there is no reason why it should not reach 300,000. Every motorist who expects to tour wants information, and the Touring Club of America, with its branches scattered throughout the country, should be the best solution of this problem. Already the club has in its files transcontinental routes and thousands of miles of other road routes covering the territory from Portland, Me., to Denver, Colo., and from the gulf states to the Canadian boundary line and beyond.

Possibilities of the Club

A good example of what the possibilities of the Touring Club of America are can be had from what the Touring Club of France, and the touring clubs of other European countries are doing today. If an American goes abroad to motor through a dozen European countries, he first joins the Motor Union of Great Britain, the Touring Club of France, the Touring Club of Italy, the Touring Club of Switzerland, or the touring club of some other country. The fee may range from \$10 to \$50, but in return he will be able to secure from these bodies a complete itinerary for a tour of whatever duration he de-



MAIN OFFICE OF THE TOURING CLUB OF AMERICA

sires. These touring clubs not only furnish the information, in typewritten form, but provide maps, lists of recommended hotels, lists of garages, and all information relative to speed laws, licenses necessary, passports, etc.

After briefly glancing at what the touring clubs in Europe are doing, it is natural to conclude as to what it is possible for a touring body in America to carry out. The Touring Club of America has a boundless field in the outlining of routes through every state in the Union. The member living in California wants to spend 2 weeks in New England. He has his route outlined for him, he is given his list of recommended hotels and garages,

and he can secure proper information on weather and road conditions. The tourist in Maine desiring to spend a month in southern California can get the same information on weather, roads, hotels, garages, and the season most suitable.

The cost of an organized tour under the direction of an efficient management will be vastly reduced as compared with what it would be if the same motorists get together and decide to make a trip without information from a skilled management. It is even possible to foresee the time when touring parties will be organized under the Touring Club of America, the same as European excursions are carried on at the present time.



ROUTE GUIDE FILES AND INSURANCE DEPARTMENT, TOURING CLUB OF AMERICA

LIGHTING WITH AUTO-SPARKER

SPRINGFIELD, MASS.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me as to whether the Motsinger Auto-sparker can be used to furnish current for headlights in addition to its regular ignition service? How should it be connected, if this is possible?—E. M. F.

The Auto-sparker will, aside from furnishing sufficient current for ignition, carry from 20 to 25 candlepower in 10-volt lamps. Fig. 4 shows the connections where the lamps are run direct on the Auto-sparker. With a combination system, consisting of Auto-sparker, storage battery and switchboard, about 20 candlepower in lamps can be burned approximately 1 hour for each hour the battery is on full charge. In this system the Auto-sparker does not light the lamps directly, but charges the battery, which in turn supplies the lamps. The wiring scheme for this arrangement is shown in Fig. 3.

WAYNE MOTOR LOSES COMPRESSION

South Braintree, Mass.—Editor Motor Age—Will Motor Age tell me how to determine the trouble in my two-cylinder Wayne car? A short time ago this car suddenly lost compression in its front cylinder, and I had the cylinder taken off and new piston rings inserted. I also had the valves reground and copper asbestos gaskets put in for valve-cage seating. I then tested the compression before putting the push rods in place and could hear a hissing sound, but could not locate it. There was no compression. I then bought a new cylinder and some rings, and had the valves ground again, with no better result. There is no resistance to be felt on the turning crank, although the engine fires regularly

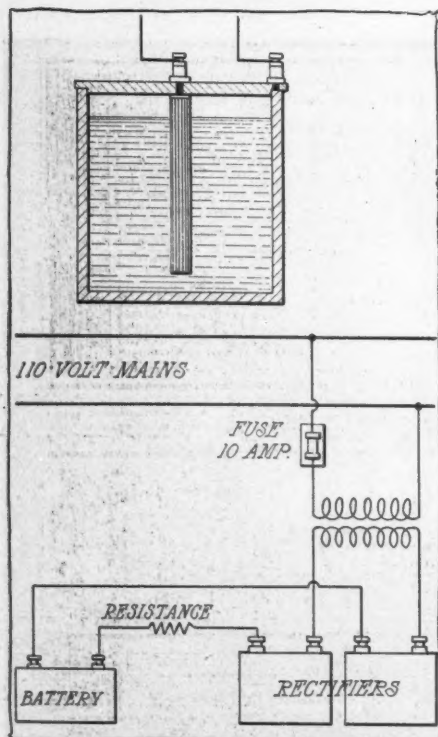


FIG. 1—A HOME-MADE RECTIFIER FOR CHARGING ON ALTERNATING CURRENT

The Readers'

and has little power. After putting on a new cylinder and running the car, I cannot account for a light film of oil that I always find on the right side of the car, covering the rear wheel and upper side of rear fender as well as the side of the body. This oil is always back of the center of the car and never in front of it and appears laid on as evenly as though put on with a brush.—S. Prince.

The lost compression in one cylinder of your motor is probably due to a leak past the piston. If you will remove the piston you will probably find that there are discolorations or smudgy spots on it where the gas has blown back. If this is the case, new piston rings will probably clear the trouble. Be sure that the piston rings are arranged so that the slots in them come at points equidistant from each other around the piston. Should the leak not be past the piston, badly fitting valves are to blame and they should be ground to a good seat.

The film of oil on the right side of the car is due to a leak of oil from the rear axle on that side. The washer that is to prevent this leakage is probably worn. Sometimes when too light a grade of oil is used in the differential housing it creeps out of the ends of the axles and is thrown about by the wheels.

FORD OILING SYSTEM

Havana, Ark.—Editor Motor Age—Will Motor Age kindly explain through the Readers' Clearing House how the Ford planetary transmission works also; also the oiling systems?—J. E. Mitchell, M. D.

The operation of planetary gearsets such

EDITOR'S NOTE—To the Readers of the Clearing House Columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

CUT-THROAT DEALERS

they would do; and then as soon as they had their cars they had no further use for the agency other than to get their cars and secure the rakeoff, as he called it. They went to Lincoln and came home with two — cars and the other party went a few days later and brought home a —.

This spring, almost everywhere I go I am confronted with this same condition. They have written to some one who has not an agent here and have gotten net prices; this I know, for I have seen letters bearing me out in this.

I have been told by one manager that these bankers and other curbstone agents come in with a customer and demand \$25, or \$50, and of course they sell them. Another manager to whom I have written about these conditions says that they are almost universal, but that I should not let that stand in my way but go ahead and sell at a smaller profit. Now, I do not call \$25, or even \$50, any profit to a legitimate dealer who has his money invested in the business. He cannot stay in business that way. A legitimate dealer has to go to the expense of demonstrating and investing his money in cars, and spending his time in the business in a proper way in order to do any business at all, and it is therefore entirely out of the question for him to keep up that way.

I concede to every manufacturer the right to sell wherever he can. But let him do it honorably and maintain dealers' prices. There is a right and wrong way to do anything and the methods which they have pursued are inexcusably unjust and dishonorable. The manufacturers who read this may say they are not to blame; that it is the jobber who is at fault. I say both are at fault, one just as much as the other. They know of these things and they are the ones who can put a stop to it, if they wish.

I can see only two ways out of this difficulty: One is for the manufacturers to take quick and decisive action with regard to the jobbers and branch houses handling their cars and

BLUE, SPRINGS, NEBR.—Editor Motor Age—I will take the time to write concerning some things and conditions in the motor car trade and especially in the retail end of it, which in my mind are so radically wrong and unjust that I cannot refrain longer, although I may be telling what is already known. I will try to make it short and to the point, and if Motor Age thinks any good can come from it by publishing it do so, as I am not going to say anything that I cannot prove to any company's representative if necessary.

The first real bump I got was last fall in a town near here, while demonstrating there. I went in to see a banker whom I learned was in the market. He was just getting ready to go to Lincoln with two other parties to buy cars. I could not interest them at all, as they said they had offers on cars at dealers' net by taking the agency for the car, and that is what

Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

AN AGENT'S PROTEST

see that dealers' net prices are not quoted to any one not in the business in a legitimate way; or for the dealers to stop putting up any money on contracts, or signing them. In fact, I cannot see any other way for the man who has money invested in the business to do but to get out of it as soon as possible unless the manufacturers do take drastic measures to correct this evil, which will without doubt put us out of business in short order.

This same banker took two of my customers to Omaha this spring and sold them at a big cut. I had spent some time on both customers, but both do their banking there and so the banker got them away from me.

Now I do not care how many get away from me in a legitimate and honorable way. I take it, then, that I am at fault in some way; but when it is done in such underhanded and cut-throat manner, as stated, then I have a right to say something even if it should not do any good.

I would like very much to see this matter thoroughly discussed in these columns. If I am wrong I want to know it and if I am not, then I want the other side to get busy and do their part. I want only what is right, but I want that.—A. H. Krauss.

Motor Age sympathizes with you in your situation. What you are up against is what scores of other dealers are up against, and it bears out the problem which has been reiterated time and again through Motor Age, namely, that the marketing of the car is the biggest problem confronting the industry today. The work of manufacture has received the lion's share of attention up to the present: the manufacturer has not spared money at any time in trying to build better factories buy better machinery, equip better laboratories, and employ factory systems, but during all this time he has entirely neglected the merchandizing of the car.

Up to the present the manufacturer has not given the dealer a fair show. He has compelled the dealer to announce at the start of the season

as that used on the Ford cars is clearly explained with illustrations in the Readers' Clearing House, Motor Age, September 29, 1910. The oiling arrangements in the Ford Model T is a circulating and gravity splash system. The oil is emptied through the breather pipe directly into the crankcase, and all above a desired level flows into the oil reservoir formed by the flywheel housing. The flywheel revolving in this oil carries it to oil wells on the sides of the gearset cover, from which it flows forward to the cylinders, maintaining the desired level. The connecting rods dip into this oil and scoop up sufficient oil to lubricate the cylinder walls, while the splash feeds oil to all the crankshaft, camshaft and connecting rod bearings. A baffle plate maintains a constant level under the cylinders and provides for the overflow into the oil reservoir.

FAVORS PLAIN UPHOLSTERY

Greenville, Ky.—Editor Motor Age—Our interest in the development of motor vehicles leads us to comment on the improvements and refinements that are being made by American designers and builders. The torpedo bodies of the 1911 models, clean, clear-cut, with fore-doors, and all unsightly projections removed—control levers inside body, horn concealed and tube down center of steering column, and even the door latches out of view on inside of doors, all make for trim appearance and added practicability. In our opinion there are a few things that might add to this effect, and one of the most important would be the employment of plain upholstery, in-

how many cars it would be possible for him to take, and has insisted upon a deposit. Many of the cars have been shipped to the dealer in an untried and untested condition, and the dealer has been put to needless expense putting these cars in good running condition after he has sold them.

It is impossible to have a healthy factory if the selling agents are not making money, and an agent cannot make money when the factory sells to curbstone agents at a dealer's price, when these agents only want a car for themselves. The factory must maintain its prices; it must maintain its contract rights with its dealers; and it can never do these by selling at a dealer's price to Mr. Smith at Smith's Corners simply because he will take one car and there does not happen to be a dealer at that point. Many of the dealers are going to be forced out of business by these tactics and it is up to the manufacturer to co-operate.

stead of the diamond, pipe and biscuit styles now so widely used by car builders. The creasing of leather and punching full of holes, as must be done in tufted work, all lessen its wear, while the folds and button pockets are regular dirt catchers and holders, making it almost impossible to clean the seats and backs. With plain coverings this work would be done thoroughly in a few minutes with a duster and cloth. Tufted work requires more time and more material, both unnecessary factory expenses. Buggy builders are using the plain work with good results, and furniture makers supply practically nothing else, while railway car builders many years ago discarded the unsanitary and expensive tufted upholstery. The smooth upholstery is slightly, sanitary, economical, waterproof, labor-saving, all strong points in its favor for factory and car users. Since so much effort has been put forth to secure straight, clean body lines, it appears that something should be done to bring the interior up to the mark. We respectfully submit these suggestions, hoping they may have the attention of builders, users and the trade in general.—The J. L. Roark Estate.

CHANGING CARBURETERS

Cleveland, O.—Editor Motor Age—I would like to ask a few questions concerning my model 16 Buick. My car has a 1½-inch carbureter. Would I get more speed and power if I installed a 1½-inch size and would I have to install a larger intake pipe; that is, the diameter? The present intake has an inside diameter of 1¼ inches.

2—I should like to know what make of muffler the Chalmers, Cadillac, Stoddard-Dayton, Oakland, White and Packard cars have installed on them.—F. Zanner.

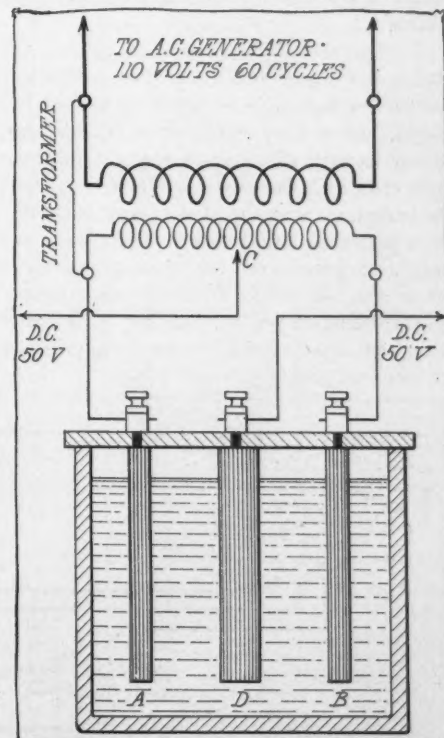


FIG. 2—ANOTHER TYPE OF ELECTRO-LYTIC RECTIFIER

1—It would hardly do to put on a 1½-inch carbureter because while it would give you higher speed you would have great difficulty in running slowly. You could, however, use a 1½-inch carbureter with the same manifold provided you could arrange a larger connection.

2—All these concerns make their own exhaust mufflers.

WEAR IN CRANKSHAFT BEARING

Champaign, Ill.—Editor Motor Age—Please answer the following questions relative to an Inter-State 40 through the Readers' Clearing House:

1—Should the crankshaft bearing show any wear in traveling 5,000 miles? If so, how can it be detected, and how remedied?

2—How can the play in the steering wheel be taken up? How much should be left, that is, in the rim, how many inches?

3—The lubricating oil used in the timing gears seeps out where the cover bolts onto the crankcase. Is there any danger in getting the bolts too tight if I tighten them to prevent this? Can medium cup grease be used as lubricant in these gears?

4—Can Motor Age suggest a method by which brake bands and rods can be kept from rattling?—L. M. C.

1—While the crankshaft bearings should not show excessive wear after traveling this distance, they will perhaps show some and it would be the wisest policy to examine them thoroughly. The central bearing can be examined by removing the crankcase and loosening the four bolts of the bearing cover. If it shows too much wear it should be relined or the worn shims removed. The outer bearings should be treated in the same way. If the crankshaft is scored it should be trued up on the lathe.

3—There is little danger of getting the bolts too tight, but if the oil seeps out after the bolts are brought up reasonably tight, cut a paper gasket to fit the case, cover it with shellac and place it between the case and the cover. When the cover is bolted up and the shellac set, the joint will probably be oil-tight. You should not use any grease on the timing gears, as they are lubricated from the general oiling system of the motor. It is probable that the cause of the seepage you notice is the excess grease you are using.

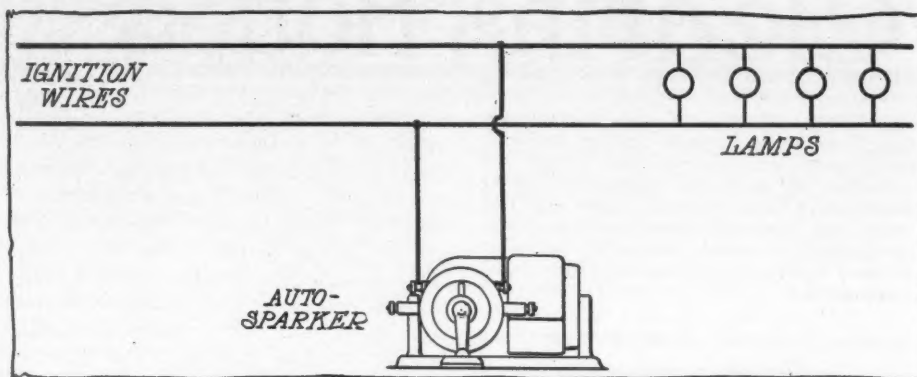


FIG. 4—USING AUTO-SPARKER TO SUPPLY LAMPS DIRECTLY

4—It is impossible to give you definite directions for curing the rattle in the brakes and connections without knowing just where it is. In general, tighten up all bolts and pins that are loose and take up the play in the rods.

THE CHAUFFEUR

Chicago, Ill.—Editor Motor Age—There probably is no class of individuals who have it more in their power to popularize motor cars than our chauffeurs. These fellows talk about the small recompense they receive for their services, but do not realize that it is partly their own fault. For instance, the driver who runs down chickens along country roads just for the fun of it creates a feeling among country folk of hatred for these self-propelling vehicles, a feeling that not only hurts the trade but deprives the farmers of many pleasures and most of all limits the chauffeur to a more narrow field than he otherwise would enjoy.

Then again, the chauffeurs who recklessly speed their cars to 60 miles an hour through the streets, create a strong public sentiment against their further use and future purchases. Many owners of cars, because of reckless driving on the part of chauffeurs causing accidents, get rid of the cars. For this the chauffeurs have themselves to blame.

Even admitting that the country has today one car for every hundred in population there is no reason to suppose that the limit has been reached. Double the number of motor cars would be used if they were more popular. Millions of dollars are spent every year for horses, summer resorts and pleasure trips which would be

spent on motor cars were it not for the sentiment against them.

As long as chauffeurs fake in expensive repairs, cause accidents and terrorize communities they have no one to blame but themselves when they complain about wages, for their acts, instead of broadening the field, diminish it.—Allan Steven.

PULSATION IN CADILLAC MOTOR

Ocala, Fla.—Editor Motor Age—Through the Readers' Clearing House will Motor Age kindly answer the following questions:

1—There is a regular beating, pulsating sound in my motor whenever it is putting under a heavy charge of gas, with the spark retarded. If the spark is advanced the throbbing is eliminated to some extent, but not altogether. I notice this mostly in heavy sands when the spark cannot be advanced on account of the motor pounding. The motor is a Cadillac 1910. I have had the bearings tightened, and have tried regulating the carburetor, all to no effect. Can Motor Age offer suggestions for remedying this?

2—There should be no play in the steering wheel, but it should not be too tight to turn easily. The method of adjusting steering gears will be discussed in these columns in an early issue.

1—The trouble seems to be due to a loose piston. Have the dealer from whom you secured the car look over it and if necessary he can take the matter up direct with the factory.

HOME-MADE CONVERTER

Chicago—Editor Motor Age—I would like some details as to how to make a simple transformer that will transform an alternating current into a direct current. The house supply here is alternating and I want to charge 4-volt batteries and I believe there is some simple arrangement whereby one can make a transformer consisting of two certain plates immersed in a certain acid, but just now I cannot call to mind just what the arrangement is.—W. F. Donner.

The converter to which you refer is what is known as an electrolytic rectifier. It can be made in two ways. One type, with its connections, is illustrated in Fig. 2. It consists of a large square glass jar such as is used for plunge batteries, and over which is a cover of hard rubber.

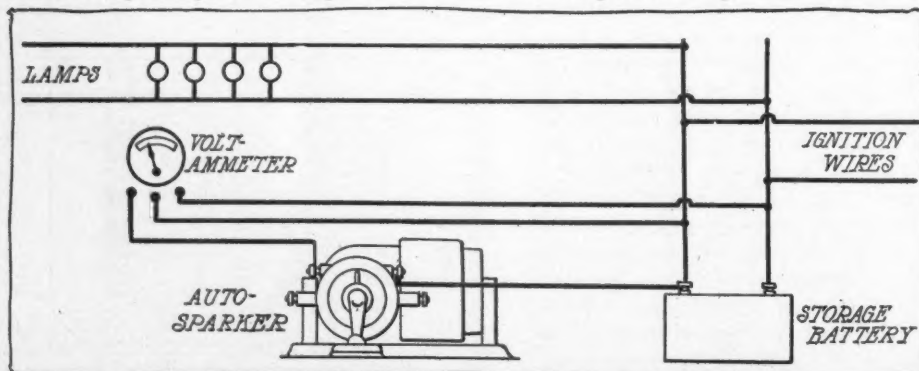


FIG. 3—CONNECTION OF AUTO-SPARKER TO CHARGE STORAGE BATTERY FOR LIGHTING

This cover has three brass binding posts and to the middle post a sheet of lead is attached, while to the outer posts a rod of aluminum is secured. These metal elements are immersed in an electrolyte composed of a 10 percent solution of sulphuric acid such as is used in storage batteries.

With this rectifier it is necessary to have a transformer with the terminals of the primary winding connected to the alternating current mains as usual. The terminals of the secondary coil of the transformer are connected to the aluminum rods A and B through the binding posts, while a third terminal wire is connected with the middle turn of the secondary C and with the wire connected to the lead plate D two leads are formed from which flow the positive or direct current impulses only.

The other rectifier with its connections is shown in Fig. 1. It consists of an iron or lead pot with a nonconducting cover through which is a terminal attached to a rod or sheet of aluminum. The cell is filled with a saturated solution of ammonium phosphate. Two or more cells are needed and should be used on a circuit of not much over 20 volts.

GUN-METAL FINISH FOR BRASS

Ames, Ia.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, answer the following questions?

1—I have access to a bake oven and a well-equipped chemical laboratory, and would like to learn of a liquid or formula for a liquid to apply to polished brass to give it a durable, weather-proof, non-tarnishing, gun-metal finish. Also directions for applying.

2—Sketches of several leading types of self-locking cutout pedals.—P. R. Kuempel.

1—Black nickel—sometimes called gun-metal—solution is applicable to all classes of metal goods, whether plated or not. It is a plating solution, as electric current must be used to get results. The formula follows: Nickel solution, 1 gallon; carbonate of ammonia, 3 ounces; ammonia, 1 pint; white arsenic, 1 ounce; cyanide of potassium, enough to make solution clear. Pulverize the carbonate of ammonia; then dissolve it in the nickel solution; next add the ammonia; dissolve the arsenic in a

small quantity of the solution; and when made into a thick paste add it to the solution. It should be about the color of dark vinegar.

After thoroughly mixing it is ready for use, with a nickel anode and not too strong an electric current. If the black

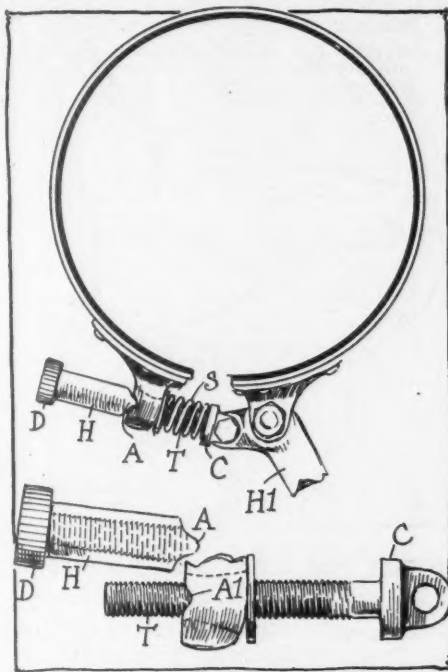


FIG. 5—ARRANGEMENTS FOR EASY BRAKE ADJUSTMENT

deposit is streaked or spotted, remove the object and brush; then replat, using a stronger current. As may be seen from the foregoing, a knowledge of electroplating is quite necessary to obtain the best results.

A fairly durable steel-gray finish may be obtained without electroplating by simply immersing the article in a solution of: Water, 1 part; muriatic acid, 2 parts; sulphuric acid, 1 part; arsenious acid, 1 part. This solution may be used cold, but better results are obtained when used hot.

2—Several of the leading types of locking cutout pedals are illustrated in Fig. 6.

FITTING EASY BRAKE ADJUSTMENT

Galesburg, Ill.—Editor Motor Age—Through the columns of the Readers' Clearing House tell me how to fit an ad-

juster on the band brake of my car. I have seen one described somewhere, but cannot recall the method.—Reader.

An arrangement like that shown in Fig. 5 will probably answer your requirements. Fasten a collar C on the hinge end of the connecting rod T and thread the other end. Then thread a tube H to screw over the connecting rod. It should have a milled head D on one end, while the other should have a projection A to set in a notch A1 in the lug on the brake. Slip a spring S over the connecting rod and pass the latter through the lug. The tension of the spring will hold the tube in the notch and prevent losing the adjustment. When the brake is relieved the tube can be pulled out of engagement with the notch and the distance between the ends of the band adjusted by turning the milled head. A washer should be placed between the end of the spring and the inner face of the lug, which should be rounded off a little.

ENAMEL FOR BRASS PARTS

Highland, Kan.—Editor Motor Age—Through the Readers' Clearing House will Motor Age give me a receipt for enameling the brass parts of a car.—C. V. J.

If you have in mind coloring the lamps and other parts black this can be done by the japan process, that is, painted with several coats of jap-a-lac or some other dark paint. Where a real enamel is used it has to be applied by a baking process. Where a gun metal finish is given this is done by an electric plating process. Black enamel, suited for lamps, can be obtained from any lamp manufacturer. The majority of dealers in the large cities have arrangements for enamelling, which costs from \$1.50 to \$2 per lamp, and requires a couple of days to have the work done. Many lamp concerns use an elastic enamel which is applied with a brush and then the part is baked in an oven at a temperature 125 to 135 degrees Fahrenheit for 3½ hours. Before applying this enamel the brass part is well cleaned to remove grease and grit. It is then gone over with a scratch brush, which is a wire one, to roughen the surface a little so the enamel will hold well. You can secure from many of the big enamel houses a fairly satisfactory enamel that can be applied with brush and will dry in 12 hours.

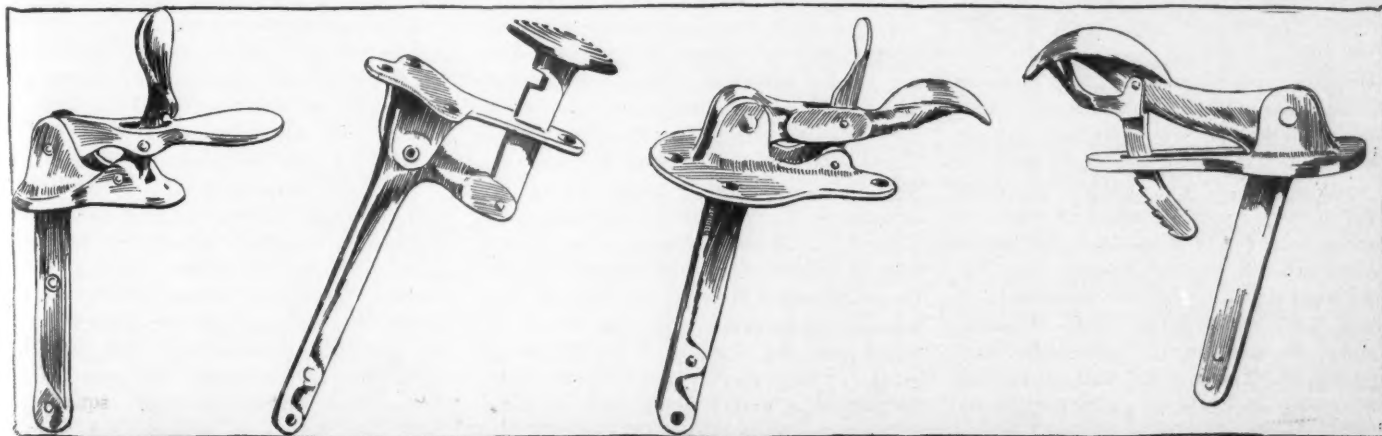


FIG. 6—SOME OF THE LEADING TYPES OF LOCKING CUTOUT PEDALS



Routes and Touring



ROUTE FROM ST. CLOUD, MINN., TO CHICAGO

TOULON, France—Editor Motor Age—I am writing this in the American consulate, whose location at Port Marchand, overlooking the beautiful harbor of Toulon, one of France's important Mediterranean ports, is ideal. Consul Mansfield's little de Dion landed him and me here yesterday afternoon after a memorable ride of 87 miles from Cannes. At La Napoule, almost on the outskirts of Cannes, we struck the famous Corniche d'Or road, which Frenchmen claim—and with good reason, so far as my experience and knowledge go—to be the most sensational and spectacular motor road in the world. It is well named, corniche meaning a cornice and or referring to the golden sunshine of the Mediterranean coast.

It has an interesting history, having been built at the instigation of the Touring Club of France, which contributed \$40,000 toward its construction. The balance was paid by the Paris-Lyons-Marseilles railroad and the local department. The road extends from La Napoule to San Raphael for 25 miles through the Esterel mountain district, skirting the shore and following its constant indentations all the way, being actually carved from the rock for most of the distance. Imagine mountains skirting the north shore of Long Island to the water's edge and multiply its number of bays and tiny harbors by ten and you have the Corniche road.

Hairpin turns abound in great numbers and of a variety that would make a Vanderbilt course hairpin seem as easy as the curves of Brighton Beach by contrast. It requires a good and cautious driver to negotiate it. As a fool killer it would be without a rival, for a reckless pilot would be punished by being dashed over the cliff into the sea, several hundred feet below. No wonder they call it sensational. It certainly is spectacular and ruggedly picturesque as well, with the cliffs rising abruptly to great heights on the one side and the bare expanse of the

MOTOR TRIP ALONG MEDITERRANEAN

Mediterranean being in constant view on the other. It abounds in spots of historic interest, such as the island of Saint Marguerite.

All along the road were the warning signs of the Touring Club of France, which, by the way, go further than merely pointing out the danger spots and give the motorist information as to interesting historic spots and how to reach them. The club even goes so far as to provide benches where there are particularly fine views. Along the roadside the motor advertising signs interested me not a little. European tires frequently were exploited, but their signs did not compare in prominence or size with those of Goodrich, setting forth the location of its nearby agencies. Incidentally Mr. Mansfield stirred my patriotic pride by pointing out on his de Dion a Goodrich tire that had outlasted two other sets of tires of foreign make.

We stopped for dejeuner at an old country inn at Frejus, where we put the car up in the cavernous stone stable adjoining without charge and without having any volunteer caretaker loafing around for a tip. We were now in the vineyard country of southern France, where the going was level most of the way, barring some 8 miles across the mountains of the Maures. The latter are covered with cork forests, great quantities of the bark being shipped to the United States. Most of the journey now was past vineyards, with the vines being but stalks a foot or so above the ground. They are all American roots, by the way, the native vines some 40 years ago having been destroyed and the sub-

In this department Motor Age will give information on routes and touring conditions. Suggestions on new or better routes are invited. All communications must be properly signed, as an evidence of good faith, but should the writer not wish his name to appear, he may use any nom de plume desired.

stitution of our roots having been the only salvation of the grape growers. It may interest you to be told that this native wine sells at 3 cents a quart.

Some 15 miles from Toulon we passed through Hyeres, where the chief industry is supplying violets for Paris, London, St. Petersburg and other big European capitals. It is also a popular resort for Englishmen, fully 2,000 of them spending their winters here.

Bumping over Belgian blocks for several miles into Toulon, our journey ended at the garage, where our consul stores his runabout at a charge of \$2—think of it, \$2 per month. Last evening we dined at one of the swell restaurants of the town, took our coffee on the sidewalk of a cafe partly sheltered by canvas awnings and heated by three large stoves. Then we went to a vaudeville show, where petits chevaux gambling furnishes the entr'acte attraction, and you get back your franc and crown besides if you have placed it on the winning one of the nine toy horses that are sent whirling around a course in the center of the double-ended layout. The policy of the government is to allow the officers of the ships and forts to lose their francs on petits chevaux on the theory that it will keep them from staking larger sums at the clubs on other games.—John C. Wetmore, of New York, N. Y., U. S. A.

FROM BIRMINGHAM TO ATLANTA

Salisbury, N. C.—Editor Motor Age—Kindly give me a route from Atlanta, Ga., to Birmingham, Ala.—W. A. Hennessiee.

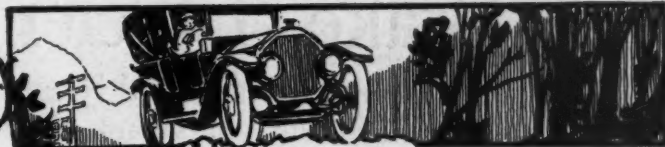
The route from Birmingham, Ala., to Atlanta, Ga., is through Anniston, Tallapoosa and Douglasville to Atlanta.

ST. PAUL TO MILACA, MINN.

Edgar, Wis.—Editor Motor Age—Please advise me through the Routes and Touring Information department of the streets and roads to take from St. Paul through Minneapolis to Milaca, Minn., and the condition of the roads.—A. C. Wagner.

There are possible half a dozen different traveled thoroughfares between the twin cities and the shortest one would be a distance of 12 miles, starting from Fourth street near Cedar. Traveling on Cedar to the capitol, turn to the right and go uphill to University avenue, pass the north side of the capitol and turn to the left on to University avenue. Follow the street car tracks to Minneapolis as far

Information



as Washington avenue, then continue on University avenue to Central and to the center of the city.

The longest route takes in the points of interest along the way and registers 23 miles. Starting from the same place, go to Wabasha on Fourth street, then to West Third street and to the right out as far as Seven Corners. Turn to the left on West Seventh street to Fort Snelling, cross the bridge, keeping to the left to Headquarters, turn to the right and go straight ahead between the blacksmith shop and the commissary department, travel on the new parkway across the railroad tracks to Minnehaha park. After passing the park go left on the boulevard to Lake Harriet, Lake Calhoun, Lake of the Isles, Peavey fountain through Kenwood to the Plaza hotel.

In answer to a communication from A. G. Whitney at St. Cloud, Minn., issue of April 6, you will find the route from Minneapolis to St. Cloud by towns. If you desire more information, such as hotels, garages, running directions, etc., you can purchase a handbook from the Minneapolis club at the Plaza hotel for \$1. It is only a short distance from St. Cloud to Milaca and you might inquire of the St. Cloud Automobile Club for road directions to your destination. Motor Age believes you will find the roads in good condition. Part of the journey is macadam and part is sand and no hills.

A SHORT ROUTE

Hinckley, Ill.—Editor Motor Age—Kindly publish a good motor route from Aurora, Ill., to Hamlet, Ind., which will not take me into Chicago.—William R. Haish.

From Aurora, Ill., go direct to Plainfield and Joliet, thence almost straight east

FOR THE SAKE OF THE NOVICE

Chicago—Editor Motor Age—I have been following with interest the new Routes and Touring Information department in Motor Age and am particularly glad to contribute my mite toward the assistance of the novice in touring. The suggestion I have to offer is not original as I have seen the idea in print before but it has proven efficient and will probably be new to most readers.

In getting ready to start out, whether on a short trip or a long tour, there are certain things which must be inspected. The best way to go about this is to always follow a certain routine which is adhered to until it becomes second nature. I say to myself, what are my wants? Have I got everything? These give me the key words in which every letter represents one thing to look after, as follows:

W—Water
A—Acetylene
N—Nuts and bolts
T—Tires and tools
S—Spark

G—Gasoline
O—Oil
T—Try-out

Probably the only two key letters that are not self-explanatory are the last in each word, spark and try-out. When I come to the S in Wants the ignition system is immediately looked after. Are the batteries and magneto in good order and the terminal connections good? Is there a good strong buzz at the vibrator and a hot spark at the plugs? The T in Got reminds me to give the car a final try-out before the trip. I test the clutch and brakes on the low gear, and if everything works properly I am satisfied that the car is ready.—Reader.

following the trolley to Chicago Heights. Go south about 1 or 1½ miles, then east through Dyer, Schererville, Merrillville to Valparaiso. From Valparaiso there is a direct route to Plymouth, Ind., which passes through Hamlet and known as Blue Book route No. 6. Hamlet is about 15 or 20 miles after crossing the Kankakee river. Although you will not have any trouble in negotiating the run from Valparaiso,

you will encounter a great deal of sandy and rough road. For complete running directions, with the exception of that portion of the route between Joliet and Dyer, you are referred to the Official Blue Book, 1200 Michigan avenue, Chicago.

DES MOINES TO KANSAS CITY

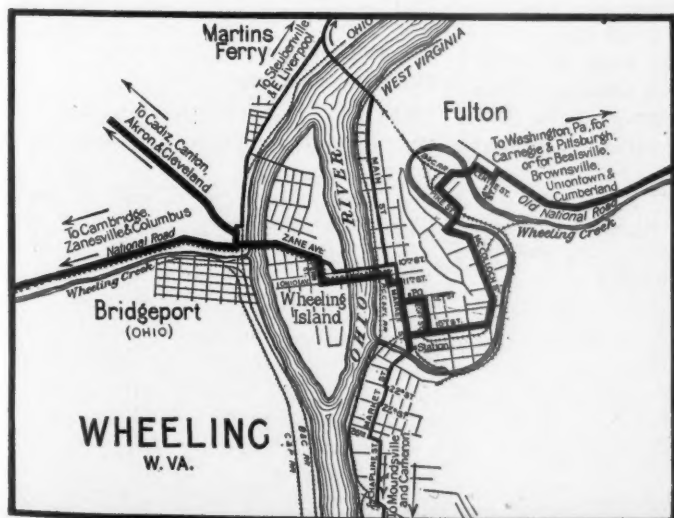
Prairie City, Ia.—Editor Motor Age—Will Motor Age through the Routes and Touring Information department give me the best route from Des Moines to Kansas City by way of Council Bluffs, and the distance in miles?—Loren M. Jenks.

From Des Moines the route desired lies through the towns of Waukee, Adel, Redfield, Dale, Monteith, Guthrie Center, North Branch, Brayton, Atlantic, Marne, Walnut, Avoca, Neola, Underwood, Weston, Council Bluffs; thence south through Glenwood, Tabor, Randolph, Shenandoah, Tarkio, Burlington Junction, Maryville, Savannah, St. Joseph, Rushville, Atchison, Leavenworth, Wallula, White Church, Kansas City. Total distance approximately 395 miles.

CINCINNATI TO LOS ANGELES

Cincinnati, O.—Editor Motor Age—Through the Routes and Touring Information department will Motor Age lay out a trip for me from Cincinnati, O., to Los Angeles, Calif., giving the road directions and other necessary information? Can Motor Age furnish me with any literature on such a trip, or tell me where I can secure it?—J. E. Waldapfel.

You are referred to the communication from B. W. F., Cincinnati, O., and map in the issue for April 6, covering route from Cincinnati, O., to Omaha, Neb. For the balance of the trip, Omaha to Los Angeles, you are referred to the communication from J. T. Hughes, Joplin, Mo., and map which appeared in Motor Age March 23, pages 22 and 23.



TOURING ROUTES THROUGH WHEELING, W. VA.



MOTOR CAR WAYS IN AND ABOUT QUINCY, ILL.
FROM THE OFFICIAL AUTOMOBILE BLUE BOOK

Car Brake Efficiency And Its Factors

Brake Testing Devices Described and Results of Tests Given—Temperature of Brake Drums and Shoes Most Important—Different Brake Facings Change in their Efficiency After Being Used One or Two Times

M. R. West
Part II

IN the first part of this article mention was made of some of the visible differences between various brake liners, but the more important characteristics cannot be determined by appearance. To what extent the different brands of liners fulfil the requirements can only be found after actual trial or by making such tests as will determine the coefficient of friction, wear, etc.

In Fig. 3 is shown the principal features of a machine for use in testing various brake materials. This machine is modeled more or less after the railway brake shoe testing machine used by the Master Car Builders' Association, and in use in the laboratory of Purdue university. A brake drum A of standard proportions is mounted upon a special hub or flange and thereby secured to some suitable shaft. Above this is arranged a lever B, at one end of which is a weight pan or suitable means for loading this end of the lever. The opposite end is held down by means of a vertical link D, which is free to resist the vertical force but not any horizontal forces. Directly over the drum center is a shoe having a hole or depression at the center of its upper surface, and into which fits loosely the end of a pin or bolt secured to the lever. The sample liner to be tested is clamped over the shoe as shown and brought into contact with the drum by means of the lever and weights. With the drum revolving in the direction indicated it is evident that the friction will tend to cause the liner, together with the lever, shoe, etc., to move towards the weight. This tendency is resisted by the spring scale E. Since the coefficient of friction between two bodies is equal to the force required to slide one upon the other, divided by the total force with which the bodies are held together, it may be determined on this machine by dividing the scale reading at E by the force with which the shoe is held against the drum due to the weights on the pan.

Conducting the Tests

In making the tests it must not be forgotten that the coefficient of friction and action of the brake liner need not necessarily remain the same throughout its entire useful life; hence a series of short tests should be made on each sample in order to more nearly obtain results similar to those gotten in actual practice. The individual tests should not be of too long a duration at first, thus heating the drum excessively. Where possible the temperature should be reduced to nearly normal between tests by means of a compressed air blast or fan. After a sufficient num-

ber of short tests have been made to determine the characteristics of the sample when new, the machine may be allowed to run continuously under such a load as will not cause it to become too hot. The reason for this will be evident from the typical test described later. As the liner wears away, tests similar to those made at the beginning should be made at intervals until the condition of the liner has apparently become constant. After this is the case and sufficient measurements have been taken to show the rate of wear, the sample may be run continuously under an excessive load corresponding to what it might receive on the car when coasting down a long steep mountain road. During this latter test the parts may be allowed to become red hot.

Fig. 4 gives typical curves showing the results that may be expected from a certain liner. Curve A represents a 5-minute test when the sample was first put in the testing machine. It will be noted that the coefficient of friction began to decrease soon after the test started, dropping from .49 to .36 during the first 4 minutes. This is due to the fact that the binder, with which the liner was impregnated, was softening as the brake temperature increased and becoming a fairly good lubricant. After 4 minutes' time the temperature had reached such a point that the binder was being burned, thus decreasing the lubricating effect and causing considerable smoke with a very unpleasant odor.

Curve B represents another test later on in the series. It should be noted that the binder material has now been baked until it offers a somewhat hard, smooth surface when cold, and that the initial coefficient in this test is lower than at the beginning of the first test, when the binder was more or less soft and pliable. As this test proceeds and the temperature rises, the binder first softens enough to become

gummy or sticky, thus causing a clinging action and gradually increasing the coefficient with approximately .40 to 1.15. However, the upper end of the curve indicates a falling off in the rate of increase and if the test had been continued long enough the binder would probably have reached the stage where it again would act as a lubricant to temporarily decrease the coefficient.

Curve C from a still later test shows the same general tendency as curve B, but the coefficient is considerably higher at corresponding points. This shows the highest coefficient obtained with this particular sample of liner.

Curve D represents a test after the sample is pretty well worn and has been heated so many times that there is very little of the binder left near the rubbing surface. At this point in the life of the liner there was very little change in the results from one test to another, conditions remaining practically constant.

Effects on Oil

Following the test corresponding to curve D, a test was made to determine to what extent this liner would withstand the action of oil on the surface of the drum. Several drops of oil were spread over the rubbing face of the drum, but not on the liner, and then as much as possible was wiped off with a comparatively clean rag. Curve E represents the test which followed and the comparison between this and curve D is so marked as to scarcely need any comment. The effect of this slight amount of oil was easily noted during the next four or five tests. Other curves might be submitted showing tests of other liners, some having an average coefficient of friction of perhaps not more than .20, which is the very lowest value indicated by the curves shown in Fig. 4, not even excepting the test made with oil on the drum.

The Wear of Liners

The rate at which the various liners wear away is of as much importance as

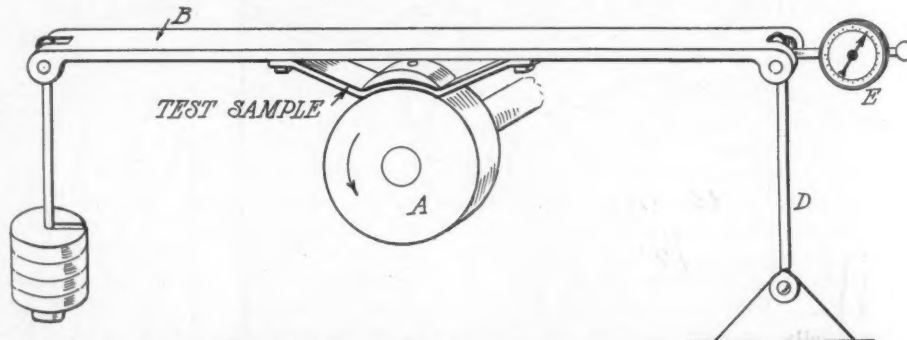


FIG. 3—MACHINE USED TO TEST BRAKE MATERIALS

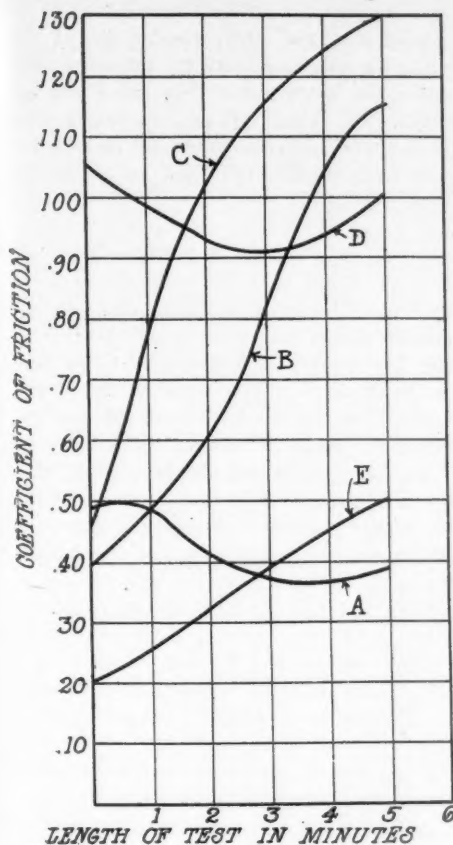


FIG. 4—BRAKE TEST CURVES

the friction coefficient, since a brake that wears down as rapidly as to make readjustment or replacement necessary at short intervals would require too much of the driver's time to keep the brakes in good order. If the time is not given, the result is apt to be disastrous.

In addition to the points already mentioned notes should be made during the tests concerning the odor given off from the sample, any tendency to cause squeaking or disagreeable noise, etc.

Results Expected of Brakes

Next consider what results may be expected of good brakes. Remember that a car traveling along a level road possesses a certain amount of energy or ability to do work, even though the clutch be out or the engine stopped. This energy is due to the car's velocity and is expressed by the general formula

$$\frac{Wv^2}{2g}$$

In which W = the weight of the moving body in pounds;

v = the velocity expressed in feet per second;

g = the acceleration of a falling body due to gravity.

Since the velocity of a car is usually given in miles per hour, the formula will be more convenient if reduced to the form

$$.03341 W V^2$$

by substituting for g its actual value, 32.2, and for v its equivalent, 1.467 V , 1 mile per hour equals 1.467 feet per second, expressed in miles per hour.

In Fig. 5 is given a curve showing the

energy per pound of car weight at various velocities. Now in order to stop the car on a level road the brakes must, if we neglect the friction due to wind, etc., overcome the energy in the car by absorbing it and turning it into heat. The work done in overcoming the energy of the car may also be expressed by the formula RL , where R equals the average retarding force and L equals the length of stop or the distance through which the retarding force acts. Thus we have

$$.03341 W V^2 = RL$$

from which we have

$$L = \frac{.03341 W V^2}{R}$$

The length of stop L will be shortest when R , or the retarding force, is greatest. The maximum value of R is found by multiplying the weight on the braking wheels by the coefficient of friction, without slip, between the tires and the road surface.

If we assume .6 of the total car weight to be on the braking wheels, also .6 as the coefficient of friction, and substitute for R in the last equation its actual value, we then have the shortest length of stop,

$$L = \frac{.03341 W V^2}{.6 \times .6 W}$$

which when simplified becomes

$$L = .0928 V^2$$

The same thing may be shown graphically as in Fig. 5. Here the middle straight line A shows the amount of work done by a force R acting through various distances on the assumption that .6 of the car's weight is on the braking wheels and that the coefficient of friction between

the tires and road surface is also .6, thus giving .36 times the car's weight as the maximum value for the retarding force R . The lower straight line B is similarly figured, except that .5 is taken respectively for the coefficient of friction and portion of total weight carried on the braking wheels. Remembering that the energy absorbed while stopping the car must equal the energy in the car at the time of applying the brakes and that any points of the various curves of Fig. 5 which are on the same level represent equal amounts of energy, it is evident that if the velocity of the car is assumed, as, for instance, 20 miles per hour, all that is necessary is to follow the vertical line L or ordinate from 20 on the speed or velocity scale until it intersects the curve of car energy, next run across the horizontal $L1$ to the corresponding point on the brake energy line, then up to the distance or length of stop scale, where we may read directly the distance 37.1 feet, in which the car may be stopped.

It should be mentioned that the value of .6 for the coefficient of friction and portion of car weight cannot always be expected in practice, and that the lower straight line B represents more nearly average good conditions. That the middle line A represents values that are not at all unreasonable under good conditions is shown by the fact that more than one-third of the cars in the Chicago reliability contest stopped in a shorter distance than would be found under the conditions here assumed. The upper straight line C assumes brakes on all four wheels and a coefficient of friction of .6.

It will be seen that weight does not

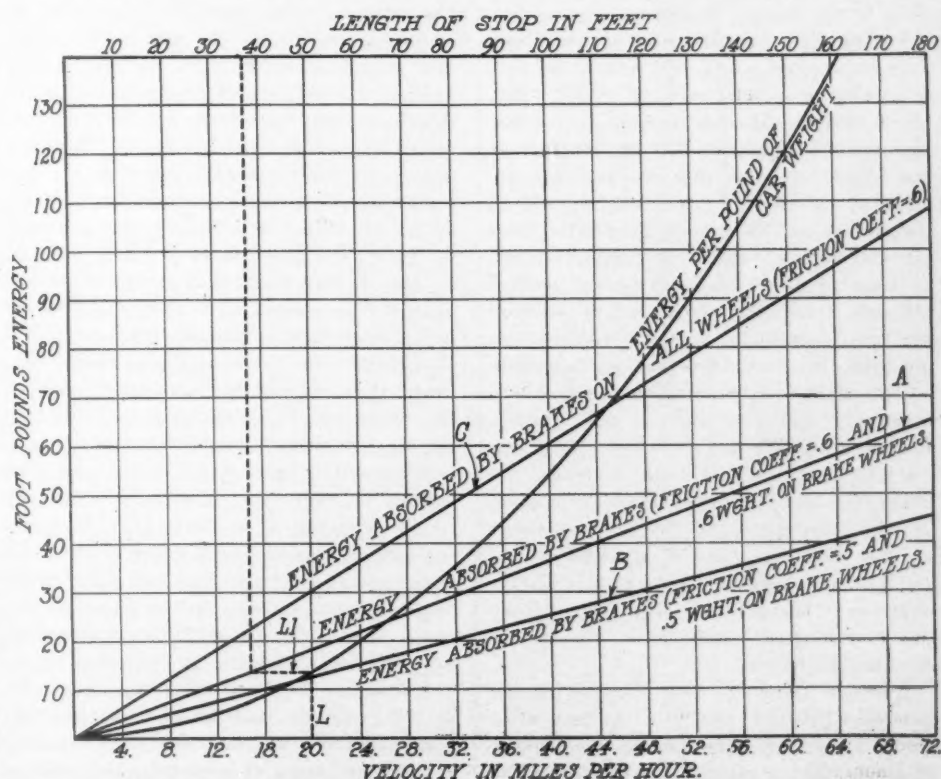
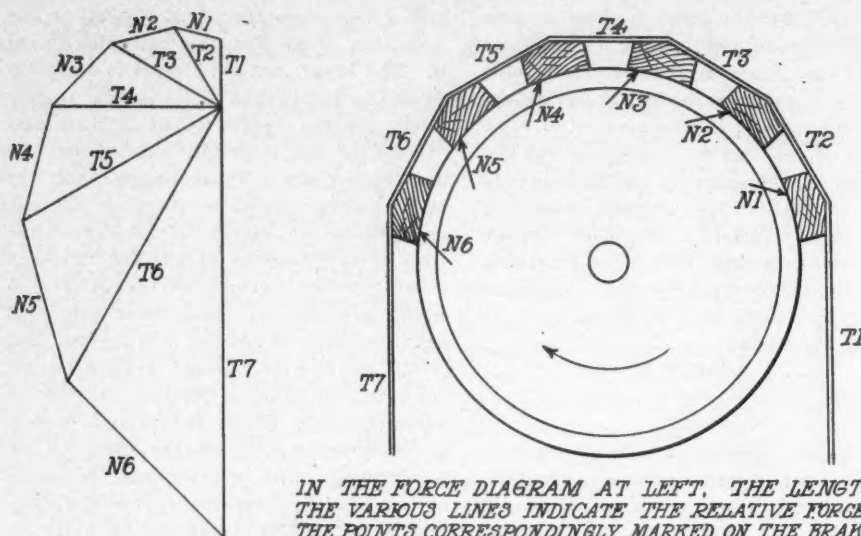


FIG. 5—CURVES SHOWING ENERGY PER POUND OF CAR WEIGHT AT DIFFERENT SPEEDS IN MILES PER HOUR



IN THE FORCE DIAGRAM AT LEFT, THE LENGTH OF THE VARIOUS LINES INDICATE THE RELATIVE FORCES AT THE POINTS CORRESPONDINGLY MARKED ON THE BRAKE.

FIG. 6—ILLUSTRATING THE EFFICIENCY OF A BRAKE

enter the formula last found and therefore all cars having the same per cent of their total weight resting on the driving or braking wheels should theoretically be able to stop in the same distance. For speeds of 10 and 20 miles per hour respectively, and with brakes on the rear wheels only, the above formulæ and curves show a possibility of stopping within 9.3 and 37.1 feet respectively. If brakes were placed on all the wheels instead of only the rear ones as usual, the distances may be still further reduced to .6 times above or 5.6 and 22.2 feet respectively.

Wood Block Brakes

Having discussed some of the characteristics of the brake liners and results to be expected of brakes, let us next take up the underlying principles generally used in the design of brakes.

Perhaps the oldest form of brakes which may be applied while the vehicle is moving consists of a block of wood, often lined with an old shoe or piece of rubber hose, pressed against the tire or rim of the wheel. In this case the pressure applied to the shoe is practically normal to its surface and is evenly distributed over the entire area. Since the tangential pull or braking effect is equal to the normal pressure times the coefficient of friction for the particular braking surfaces in question, it is evident that each portion of the surface does as much work as any other and that the surface will have a tendency to wear down evenly. Note particularly that in this form of brake the tangential pull or braking effect is practically independent of the area or shape of the shoe, and that if a coefficient of friction is .5, the tangential pull is always equal to .5 times that of the normal force due to the brake lever.

Braking on Drums

Another form of brake employing an entirely different principle consists of a drum, located on some one of the moving elements, and a rope or band, one end of which is securely fastened to a fixed or stationary part, while the other, after one or more turns or wraps in the direction

of rotation about the drum, is connected with the brake lever or pedal. If a slight pull is exerted at the loose end, a much greater force will be the result at the fixed end and the difference between the two will be the net retarding force at the surface of the drum.

To make the reason for this more clear consider a modification of this style of brake, Fig. 6. Here it will be understood that blocks of wood N1, N2, N3, N4, N5 and N6, or other suitable material, are spaced about the wheel or drum and held in their relative positions by a rope or band, one end being fixed, whereas the other is attached to the brake lever. Considering first any one particular block, it is apparent that if there were no friction between the block and the wheel or drum, the tension in the rope at either side of the block would be the same, and since this would also apply to all the other blocks, the tension would be equal at all points of the rope from one end to the other. However, we know that friction does exist and that with other conditions remaining the same the tangential force added by each block will be proportional to the normal pressure on it. Any tension or pull in the rope will press the block against the drum with a certain force, and owing to the friction between them the block will tend to rotate with the drum, thus slightly increasing the pull in the rope, which resists this tendency to rotate. Thus each block will add a certain amount to the tension in the rope following it. But the amount thus added by the friction of a block depends upon the normal pressure with which that block is pressed against the drum. This in turn depends upon the tension in the rope at either side of it; hence the amount added by each block will be greater than that added by the one just preceding it, and it will be evident that after the rope has passed several of the blocks its tension will be increasing at a pretty good rate.

Coming now to the case of the rope or band without blocks under it: The same line of reasoning applies since we have

simply changed from blocks spaced far apart to what amounts to infinitely small blocks so spaced that they touch one another. By calculus it may be shown that if the tension at the loose end be called T and that at the tight end be called T1, then

$$\frac{T}{T_1} \text{ equals } 10^{.00758DF}$$

or T1 will be equal to T multiplied by the number whose logarithm is .00758DF, D being the number of degrees that the rope or band is wrapped around the drum, while F is the coefficient of friction between the band and drum.

To the greater number of readers, this formula perhaps does not mean so much as a few concrete examples, hence the writer has hurriedly prepared the following table, using a slide rule for the calculations and making no pretence as to extreme accuracy. Assuming various values for the coefficient of friction as shown, the table gives the ratio between the two ends of the rope or in other words the number of pounds pull at the tight end corresponding to a pull of one pound at the slack end for various wraps or turns given the rope. Fig. 7 shows graphically the same results.

Turns or degrees	F. 1.	F. 2.	F. 4.	F. 6.
1/4 90...	1.17	1.37	1.87	2.56
1/2 180...	1.37	1.87	3.51	6.57
3/4 270...	1.60	2.56	6.57	16.85
1 360...	1.87	3.51	10.21	43.40
1 1/4 540...	2.56	6.57	43.40	285.60
1 1/2 720...	3.51	10.21	152.00	1,874.00
1 3/4 1,080...	6.57	43.40	1,874.00	81,260.00

The action of these two types of brakes has been mentioned for the particular reason that almost all motor car brakes are modifications of either one or the other, perhaps both.

Some Causes of Failure

The fundamental principles and factors which enter the design of brakes having

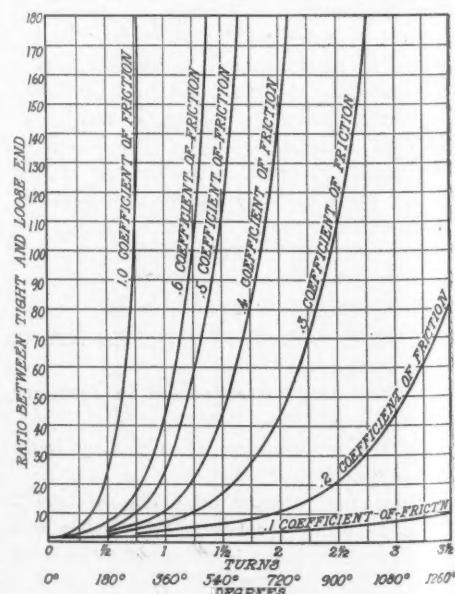


FIG. 7—RESULTS ON BRAKE TESTS

been discussed in a more or less general manner, consider more in detail some of the causes for failure of brakes. It is assumed that if the proper force to be ap-



FIG. 8—BRAKE DESIGN

plied to the friction members be definitely known for any given case, there will be no trouble experienced in determining the correct proportions for the various levers and cams in order to bring about the desired increase of the force applied at the lever or pedal. But to decide upon what is the proper force to apply to the friction member is where the rub comes. Assume, for example, that a brake similar in design to the one shown in Fig. 8 is decided upon and that the liner is to be the one for which Fig. 4 shows tests. Knowing the weight upon the braking wheels of the car, together with the diameter of the wheels and brake drums, it becomes a comparatively easy matter to calculate what will be the required resultant tangential pull on the brake bands or shoes in order to cause the wheels to slip under average road conditions. With this style of brake in particular, it is apparent that it is nothing more or less than a belt or band wrapping around the drum and hence there is no alteration to be made in the formula given above to fit such cases. Although the exact number of degrees of wrap is slightly less than 360, or one complete turn, let us for convenience consider it as 360 degrees and proceed.

Studying the Idea

Suppose in order to be safe, the value for the coefficient of friction is assumed as .2, which is the lowest value shown in Fig. 4. The resultant pull on the brake band will then be, Fig. 7, 3.51-1. or 2.51 times the pull at the slack end and the brake levers may accordingly be so proportioned that the average driver will be just able to cause the rear wheels to slide. With the levers so proportioned, let us consider what will happen when the coefficient rises to the value 1. which is still not the highest attainable. Substitution in the formula shows that the resultant pull is then 536. times the tension at the slack end instead of 2.56 as before. This means that if 100. pounds were required at the pedal to set the wheels, with the first assumption, only about 8 ounces will now be required and it will be safe to say that it would be almost impossible for the average driver to apply the brakes without

causing his tires to slide. On the other hand, it is reasonable to believe that enough oil may at times get on the brakes to reduce the coefficient to less than the first assumed value of .2.

The case above cited is perhaps unusual, but not impossible, and is given only to show to what extent the action of the brakes depends upon the characteristics of the brake liners. Where a designer has good reasons to believe that considerable grease or oil will get onto the brakes, he will be wise in selecting the above type of brake. In case it is equally as evident that the brakes will be dry at all times, it will be well, unless one knows of a liner whose coefficient of friction won't change, to alter the design and depart somewhat from the wrapping action, thus causing the braking effect to be more nearly in direct proportion to the coefficient of friction. This is sometimes brought about by anchoring the band at its middle portion rather than at the ends and thereby decreasing the number of degrees between the anchorage and point of applying the pull from the brake lever or pedal. Others so arrange springs as to pull the band

away from the drum, thus decreasing the normal pressure at those points and consequently the friction. Some doubtless do this in order to make the band clear the drum well when the brake is released and do not consider the extent to which it decreases the braking force due to a given pressure at the foot lever.

The writer believes that by far the greater portion of cars failing to successfully get through the brake tests during past trials, have owed their penalties to the variable coefficient of friction of their brake linings.

Parts Too Small

Although the brakes of relatively few cars fail, due to the actual breaking of parts, there are some that have not received proper consideration as regards lubrication and pressures at the various joints. To be sure there is not a great amount of motion at the various joints of the brake connections or links, but with no attention given to lubrication, the constant vibration is prone to bring about considerable lost motion and rattle after a time unless the pins are provided with liberal areas.

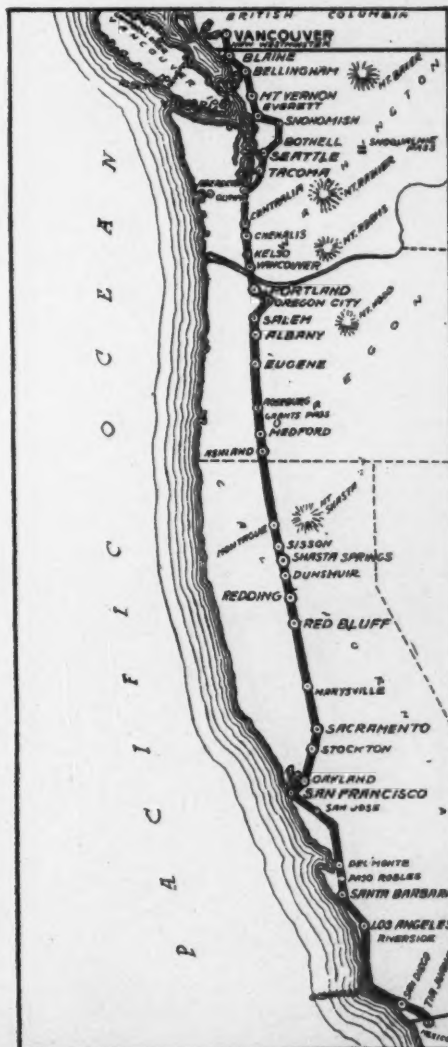
Motorists Will Help Pacific Highway

SEATTLE, WASH., April 8—A busy season is planned by the Automobile Club of Seattle. Chief among the things to be done will be the marking of the Pacific highway in Washington from the Canadian boundary to the Oregon line. For this work the Seattle club has voted to expend not to exceed \$500. The work of putting up the road guides will be under the direction of the club's good roads committee, and N. B. Abrams, chairman, will be actively in charge of the work.

A uniform design for the sign to be used will be selected by the good roads committee. The guides will not be elaborate and it has already been decided that the only lettering which they will carry will be the words, "Pacific Highway," and the Seattle Automobile Club's emblem. The signs will be of a permanent character, either of wood or iron, and carried on a substantial post.

The sign work will be begun at once and it is hoped that the road guides will be in place up and down the whole width of the state by June 1. The Seattle Automobile Club will endeavor to interest the county commissioners in the territory traversed by the Pacific highway in the movement. Their assistance would prove invaluable especially in maintaining the signs once they are up.

The Portland Automobile Club will be asked to continue the work southward in its state, and the British Columbia good roads officials will be asked to mark the roads northward from the boundary line. The Washington legislature recently rejected the plan of building the Pacific highway from Blaine, Wash., to Vancouver.



PROPOSED PACIFIC HIGHWAY

The Motor Car Repair Shop

IN FIG. 1 is shown a simple rack of homemade construction and design made to provide a place for emery cloth in the stockroom of the repair shop. With this sort of a rack, the stockroom clerk can quickly tear off a sheet or strip of emery cloth when asked for it; the amount of emery cloth on hand can be seen at a glance; and there may be three or four rolls instead of two, as shown in the illustration, so that the grades may comprise coarse, medium, fine and crocus cloth. The construction hardly requires description; it consists of an ordinary box, a little wider than the standard width of a roll of emery cloth, and the spindles are of wood and have a bearing in holes in the sides of the box as indicated.

Drill and Reamer Rack

Another useful article of repairshop stockroom furniture is shown in Fig. 3; it represents a rack for drills, reamers, arbors and tools of similar character which can be conveniently placed to rest in recesses in the shelves which are sized and contoured to receive them. The shelves are equally distant apart and arranged on a slant so that all tools are clearly visible and easily removed or replaced. There is a little nail under each recess adapted to receive a brass check about the size of a 25-cent piece, and whenever a tool is absent there should be a check hanging on the little nail opposite or under the recess in which it belongs.

Each workman is required to have about ten of these little brass checks, which are numbered; the checks of one workman for instance, being numbered 10, while another workman's checks may have 12 stamped upon them; so, when a workman receives a tool from the stockroom, he must give in return one of his checks; if

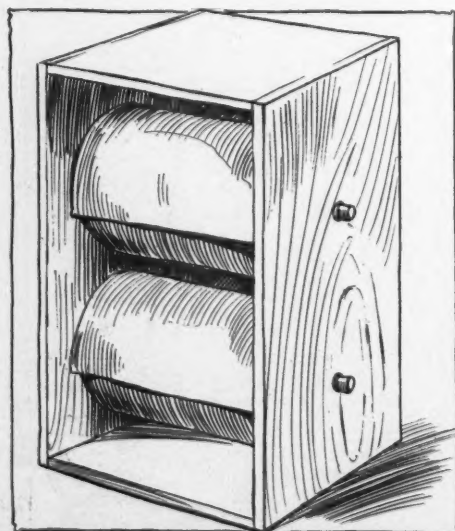


FIG. 1—EMERY CLOTH RACK

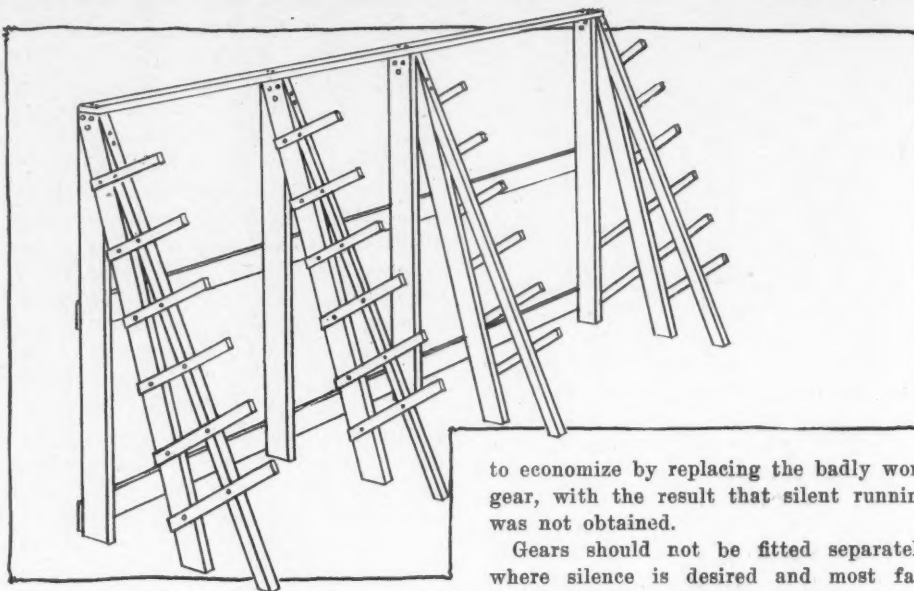


FIG. 2—ROD STOCK RACK

he receives two tools he gives two checks, etc., and if one or both of the tools happen to come off the drill and reamer rack, the checks are hung on the little nails under the respective recesses as above described. This enables the stockroom clerk to know at a glance just what tools are out and who received them.

Noisy Rear-Axle Gears

When the gears of the rear axle become noisy, it is a sign that either they are crying out for lubrication, the bearings supporting the gears are worn and out of adjustment, or the teeth are worn and do not mesh properly. If the whirring noise cannot be stopped by replenishing the lubricant, then one might attribute the noisiness to one or both of the other causes; but it is possible for one to pack a rear-axle casing almost full of hard grease and soon after have the noise return, only, perhaps, a little less audible and with a change of tone, which is due to the fact that the case is packed and not partially hollow; this is brought about by using too hard a grease, so that after a short time a path is cut into the grease by the revolving gears and the noise begins when the grease packed between the teeth at the start or when the supply is replenished, is squeezed out. This often occurs in the winter time when the grease is too cold to flow.

To reduce the noise of a set of gears which are improperly meshed, there is only one proper remedy for each cause; adjustment of the bearings when worn, and refitting of the gears when the teeth are worn. It sometimes happens that one gear will wear much faster than the other, and efforts have been made in such cases

to economize by replacing the badly worn gear, with the result that silent running was not obtained.

Gears should not be fitted separately where silence is desired and most factories prefer to supply the gear replacements in pairs or sets, not because of the profit in selling another gear, but because they know the difficulty of meshing gears.

Rod Stock Rack

In many motor car repairshops no facilities whatever are provided for rod and bar stock, tubing, etc., other than simply allowing it to lie on the floor or stand on end in one corner of the stockroom, so that whenever a piece is required much rummaging among the various sizes is required before the required size is found. This not only gives the stockroom an untidy appearance, but causes a great waste of time—for the mechanic when he wants stock, for the stock clerk when he must find a required size, and for the sweeper when he cleans up each day. This loss of time could in a short while pay for a rack such as is illustrated in Fig. 2, it being merely a substantial wooden structure.

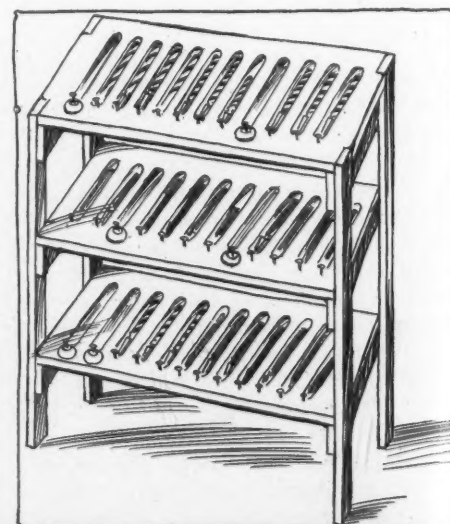
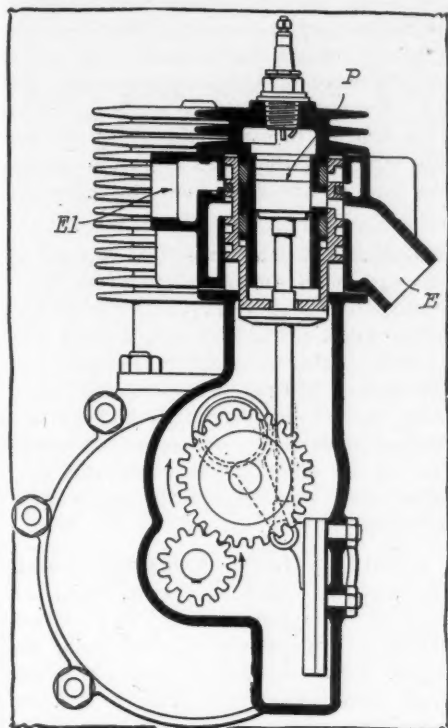


FIG. 3—DRILL AND REAMER RACK

Current Motor Car Patents



PISTON VALVE MOTOR

QUICK Detachable Demountable—No. 987,216, dated March 21; to J. C. Cole, Chicopee Falls, Mass.—In this patent the clincher rim is divided circumferentially into halves R and R1. The means for anchoring these halves together consists of projections on each half, which are staggered, a projection on one half fitting between two projections on the opposite half. There is a circumferential channel C in these projections into which fits a locking ring A, this ring serving to bind the halves R and R1 together. The demountable feature consists of a V-shaped ring B, which is held in place by a series of transverse bolts.

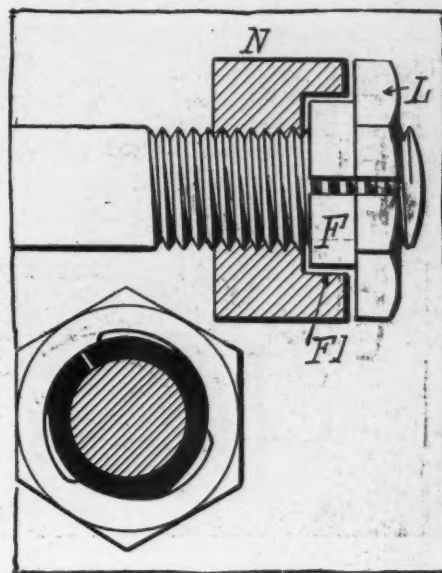
Motor Sleigh—No. 987,573, dated March 21; to H. Guttormson and H. Haas, Pope, N. D.—This patent includes a bob or runner B to carry the rear axle together with

a framework on this runner in which the rear axle is rotably mounted. On the end of each axle shaft is fitted a wheel with large teeth in the periphery, these teeth being designed to engage the snow when propelling the car. The front bob has a framework rising from each runner and a ball in the top of the frame, a coupling on each end of the axle provided with a socket to receive the ball, a sleeve mounted on each pivoted terminal for rotative and longitudinal movement, a stud depending from said sleeve, a bar pivoted on said stud, and rigid connections between each end of the bar and the runner.

Adjustable Lamp Bracket—No. 987,139, dated March 21; to G. W. Houk, London, Eng.—This bracket consists of a pair of prongs P, the stems of which pass through clamping plates C on the car frame. By loosening the nuts on the lower end of the prongs they can be separated or brought together to a width to suit the lamp.

Lock Nut—No. 987,106, dated March 21; to E. A. Blanton, Jr., Philadelphia—In this locknut, illustrated, is a threaded nut N and a contracting split locking part L designed to enter a recess in the outer end of the nut N. On the opposing faces F and F1 are co-operating cams adapted to close the space between the locker L and the nut, as the locker is threaded into place. When the co-operating cams are in contact the locker L has to contract until they are out of contact.

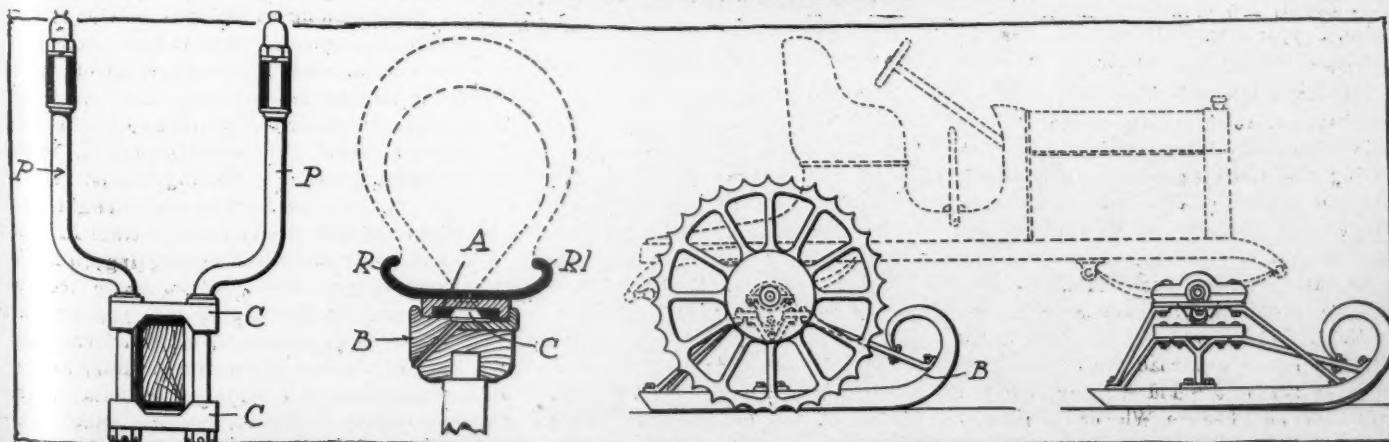
Piston Valve Motor—No. 987,164, dated March 21; to A. E. Osborn, New York—In this motor there is an intake E and an exhaust E1, both controlled by the reciprocating piston valve P, which governs these



BLANTON'S LOCK NUT

passages as well as a common distributing passage. The mechanism also includes a valve at one end of the distributing passage for controlling it, and means located at the other end of the passage and operated by the piston valve for connecting this distributing passage with either the inlet or exhaust pipe.

Spring Wheel—No. 987,191; dated March 21; to G. M. Tremmel and E. Christensen, Two Rivers, Wis.—In this wheel are thimbles placed radially in the rim with their outer ends towards the hub, there being one thimble for each wheel spoke. In each thimble is a support with a slidable stem extending outward beyond the rim. A sector block engages the outward end of the stem and a pin extends transversely through this block. There are circular plates in connection with the sides of the rim, these plates having radial slots in which the pins engage. There is a spring under tension between the support and the block, this spring being the resilient feature.



ADJUSTABLE LAMP BRACKET

QUICK-DETACHABLE DEMOUNTABLE

GUTTORMSON'S MOTOR SLEIGH

From the Four Winds



MR. FUJIWARA, JAPANESE DEALER, VISITS PAIGE-DETROIT PLANT

WANT Asphalt Duty Removed—Effort will be made during the extra session of congress to secure the removal of the present duty of \$1.50 per ton on crude asphalt. A reduction of \$1.50 a ton in the price of asphalt would mean the saving of many millions of dollars in road and street costs, it is claimed.

Ohio's March Report—According to the report of the Ohio motor car department for March, 6,399 motor cars were registered, bringing in fees to the amount of \$31,162. Chauffeurs to the number of 494 were licensed and manufacturers and dealers to the number of ninety-one were registered. The total revenue of the department for the month was \$33,449.

Overlands in Egypt—An accompanying illustration is a reproduction of a photograph taken in Egypt by the foreign representative of the Overland company. It is a unique picture, showing the Toledo-built car in the foreground of one of the historic African sphinxes. Those shown in the picture are: E. G. Eager, foreign representative of the Willys-Overland Co.; Mrs. Eager, Mr. and Mrs. W. Gabriel, of Cairo, Egypt; Mrs. McIntyre and Miss McIntyre, of Winnipeg, Canada.

Toll Road Doomed—The famous Whitefish bay toll road at Milwaukee, Wis., a relic of provincial days, which is still collecting the dimes and quarters of motorists and passersby, soon will be no more. The county and city of Milwaukee have decided that the day of toll roads in the state has long since passed and the road will be acquired by condemnation proceedings. The road recently has fallen into bad repair and with the construction of other roads to Whitefish bay, the toll road has not been much of a money-maker during the last few years. Mem-

bers of the Milwaukee Automobile Club, by an arrangement with the owners, always have had free passage through the toll gate. However, there are hundreds of motorists in Milwaukee and elsewhere who were compelled to pay the price or retrace their tracks to the other roads.

Can Use Milwaukee Track—The Wisconsin state board of agriculture has voted to allow the use of state fair park mile dirt track at Milwaukee for a race meet under the auspices of the Milwaukee Automobile Dealers' Association on some date prior to July 10. It is expected that the association will hold a meet of only local importance, as the Milwaukee club is making arrangements for an August date on the national racing circuit.

Encouraging Action—The first step in the direction of good roads in Racine county, Wis., was taken last week when the board of supervisors voted to purchase a 21-acre gravel pit near Burlington, Wis., to furnish material for road building and highway improvement. The only good roads work done in Racine county thus far has been accomplished by private interests for the public good, the J. I. Case Threshing Machine Co. being the chief worker.

Japanese Visitor—A prominent importer from Tokio, Japan—the exclusive distributor of the Paige-Detroit Motor Car Co. for Japan and Korea—was in Detroit last week—Mr. Fujiwara, of Fujiwara & Co., who is one of the wealthiest merchants in Japan and handles a large amount of American products. He has made frequent trips around the world, looking for new products to introduce into his country and Korea. He employs a large number of salesmen and is one of the biggest importers of foreign goods in Japan. Mr. Fujiwara says that owing to the character

of the country it is rather difficult to use anything except light, small cars. The large number of hills and mountains, the very narrow, precipitous roads, make it very difficult to use a long-wheelbase car. The streets of the cities are very narrow, the bridges are light and the turns are very abrupt.

Oklahoma Celebration—The feature of the parade on the occasion of the anniversary of the opening of Oklahoma, which takes place April 22, will be the section devoted to motor cars, more than 500 having already been recorded for a place in the parade. This will be the largest number of motor cars ever assembled in one place in Oklahoma, and comprises about one-half of the cars owned in Oklahoma City.

Invents Individual Windshield—Joseph Cogil, station agent at Archer, Neb., has invented a motoring contrivance in the nature of an individual windshield, designed with the idea of making riding more comfortable on a chilly or a dusty day. The shield clamps onto a person's shoulders, extending down in front of the body, and up in front of the face. There is a transparent celluloid window. The shield only weighs about 2 pounds.

Motorette Progress—After ploughing through snow and mud for a month, or over roads so rough and so solidly frozen that a speed of more than 8 miles an hour was quite impossible, the little Motorette having San Francisco as its goal has been rewarded by some good country roads. Writing from Commerce, Ga., which is but 80 miles from Atlanta, Ward Sharwood, pilot of the Motorette, says: "The roads we have traveled over these last few days are as different from those we struck a week ago as is white from black. These last 3 days we have averaged 80 miles a day. We have passed the 1,000 mile mark and really feel as though we were well started on our 5,000 mile trip."

Roadbuilding at Moline—Tri-city motorists are expecting that the completion of the Rural road, the first section of which will be open for travel by July, will bring a great number of motorists to Moline and Rock Island, Ill., and Davenport, Iowa, during the coming touring season. Heretofore there has been no adequate gateway into the tri-cities from down-state Illinois, and many motorists touring from Illinois across Iowa have had to make tedious detours. In future they may run straight to Davenport, where the river-to-river road, one of the best of the cross country routes, commences. Merchants and manufacturers, principally of Moline, have subscribed \$18,000 to build the Rural road, but a further

amount probably will be necessary before it is completed. The Rural road extends straight to Moline to Rural, Ill., following old roads in the main but cutting across fields where such a course is more direct. Right of way throughout has been acquired. The road will be macadam. Several cuts and fills of over 20 feet have been made to insure as low a grade as possible.

Lozier Breaks Road Record—Speeding over the foothills of the Rocky mountains on the road between Denver and Colorado Springs, Fred Hall, with a Lozier stock car on March 30 lowered the record by making the distance of 73 miles in one hour and 43 minutes. It was Hall's first venture in racing or record-breaking work, and he succeeded in cutting 13 minutes off the previous record made by Wesley Smith in a 70-horsepower Thomas car, and which has withstood all attacks for the past 2 years. The record trial was made under the official auspices of the Denver Motor Club.

Another Road Proposed—A state road from the Illinois boundary to the south shore of Lake Superior through the center of the state of Wisconsin is proposed by a bill introduced in the Wisconsin legislature last week by Assemblyman O'Day. The road is to start at some point directly north of Chicago and the terminal shall be at Ashland, Wis. It is to be 3 rods wide, with 1 rod in the center of the road constructed of macadam. Roads already existing may be used, but the heaviest grade shall be not more than 3 per cent. A tax of one-tenth of 1 mill is to be levied, beginning this year, and work shall commence in this season.

Ritchie Succeeds Van Tuyle—J. Arthur Ritchie of Syracuse has been elected secretary of the New York State Automobile Association to succeed Bert Van Tuyle of Rochester. It is believed in Syracuse that this selection augurs well for the future of the organization and will likely mean a re-organization. As stated last week, there has been for some time dissatisfaction with the management of the body, and several clubs, including those of Syracuse and of Rochester, have threatened to leave its ranks. At the meeting held at Albany it was decided to establish a permanent office in Albany, and Mr. Ritchie will probably be in charge of this office.

On a Long Tour—Chris Brooks and Edward Norris arrived in Syracuse, N. Y., last Friday from Auburn in a Herreshoff roadster, in which they are making one of the longest tours on record. They left Detroit March 3, with the southern end of South America as their goal. They went from Detroit to Toronto, to Buffalo, to Rochester, Auburn and Syracuse. They claim the worst piece of road in the world is between Geneva and Auburn, across the Montezuma marshes. Theirs was the first car of the year to get across this bad stretch. They are getting the signatures of the mayor and president of the automobile club in each city they visit. They

proceed to New York, Philadelphia, New Orleans, Texas, Mexico, Panama and down through South America. They expect to be gone 9 months.

Will Make New Parkway—The Milwaukee county board will commence work on widening and parking the Janesville plank road, a famous turnpike and trunk road leading southwest from Milwaukee, as soon as weather conditions permit. The present 66-foot roadway will be widened to 150 feet, with a parkway in the center measuring 40 feet.

Another Sign—The farmers of Washita county, Oklahoma, have joined with the business men of Cordell, the county seat, and have organized the Washita County Good Roads Association. A graded road will be built across the county. This enterprise is undertaken on account of the many motor cars that are owned by the farmers of the rich Washita county, one of the best producing counties of the southwest.

Working on Fiat Racers—Chief Engineer Maraini has returned to this country after a 3 months' visit to the parent plant of the Fiat concern at Turin, Italy, and has again taken up his duties in the Fiat plant at Poughkeepsie. He found that the new Fiat racing cars for the grand prize road race at Savannah next fall are well under way at the Turin plant and that Felice Nazzaro hopes to begin trying them out in about a month. Maraini reports that the new 220-horsepower specially-built Fiat racer was almost completed when he left Turin. Nazzaro expected to have the car out for its first road tests late last week. After the car has been tuned up Nazzaro will race it at Brooklands, and later it will be raced in this country.

Georgians Change Plans—At a meeting of the Savannah Automobile Club it was decided to postpone the run to Pinehurst, N. C., until a later date because of all the hotels there being closed. However, it was decided to have a run to Charlotte,

N. C., a distance of 392 miles, and to make it a 3-day affair. The start will be made on May 10 and will go through Augusta the first day, Columbia the second day and Charlotte the third day.

Trying Out Speedway Cars—The Indianapolis motor speedway people have decided on the manner in which they will try out the candidates for the 500-mile race on Memorial day, which are now required to show 75 miles an hour in order to be eligible. The test will be a ¼-mile dash on the straightaway of the main stretch, each car being given a flying start and being required to show a pace equal to 75 miles an hour. These trials will be held on Saturday preceding the big race.

First Registration Arrest—The first arrest in the state of Wisconsin under the state law requiring registration of motor cars was made in Milwaukee last week. The record is considered remarkable. Anton Clemick was convicted of violating the law and fined \$10 and costs. He purchased a used car but failed to re-register it as required by the amended statute of 1909, which says that every car must pay a license fee of \$2 and obtain a new number plate each time it has a new owner. Thus far no arrest has been made under the section requiring registration of all cars in the hands of first owners.

Race Drivers Organized—Fifteen of the representative drivers of the country met in New York last week and organized the Motor Racing Drivers' Association of America, with George Robertson as temporary president and M. W. Colwell as temporary secretary. Permanent officers will be elected and a constitution adopted at a meeting held at Indianapolis May 26. The object of the new association is to better the condition of the drivers if possible. The pilots ask that the prizes consist of more cash instead of so much being put into cups. They also would have novice races in which would-be drivers would have to qualify before getting a license.



OVERLAND CAR AND AMERICAN MOTORISTS IN EGYPT



Development Briefs



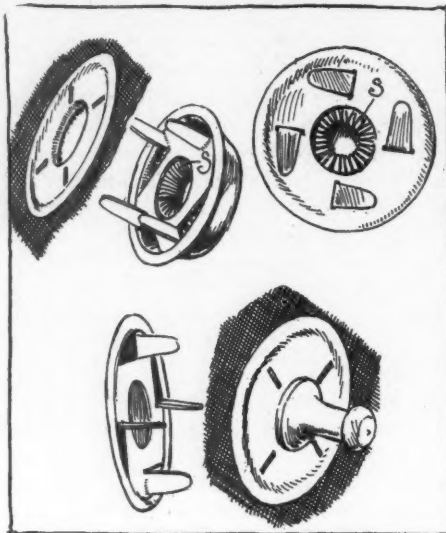
FOREDOOR TIRE HOLDER

THE foredoor tire holder is intended, as its name suggests, for cars with fore or front doors. It is carried entirely on the running board of the car, not being anchored at any point to the side of the body. It attaches through a heavy floor plate which holds by screws to the running board. From this floor plate are two vertical telescoping rods carrying a horizontal arm at their tops. Each end of the horizontal has a tire holder bracket. Attached to the floor plate is the third folding tire holder bracket. The tire holder accommodates one or two large or small tires and is made in two sizes, one for tires up to 36 by 5 inches and demountable rims up to 34 by 4 inches, and the other size for extra large tires and larger demountable rims. Garage Equipment Mfg. Co., Milwaukee, Wis.

The Cape Top Door

The trouble of getting into the tonneau of a car when the top is up and the side curtains in place is well known. It is necessary to unbutton the side curtain in order to get in, and, when inside, these curtains have to be buttoned up again. To facilitate the use of side curtains, the Universal door curtain carrier has been manufactured. It is simply a metal bow which clamps onto the tonneau door. This

Brief Descriptions and Graphic Illustrations of Motor Car Parts



BROGA TOP FASTENER

bow conforms in contour with the bows of the top and carries a button to which the curtain attaches. When you open the door, that part of the storm curtain above it swings open with it. W. C. Knight & Co., Cincinnati, Ohio.

Tryon Tire Pump

The Tryon tire pump is driven by a friction wheel from the flywheel of the motor. It is a single-cylinder, air-cooled pump, pivoted on its base so that it can be swung into contact with the flywheel when needed. It weighs but 9 pounds and occupies a space 8 by 6 by 4 inches. It attaches to the frame of the car by a universal locking device which can be tilted to an angle of 45 degrees to accommodate the size of the flywheel, a thumb-screw locking it at any angle. The pump cylinder is a grey iron casting; the piston carries two split compression rings; the pump is tested to a pressure of 250 pounds. Bronze bushings are used in the connecting rod and to carry the crankshaft, and a grease cup is fitted to lubricate the cylinder. The pump is, as the illustration shows, very compactly arranged.

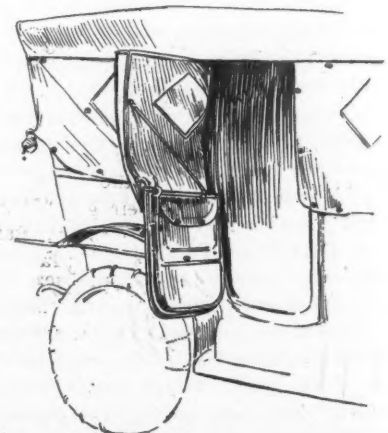
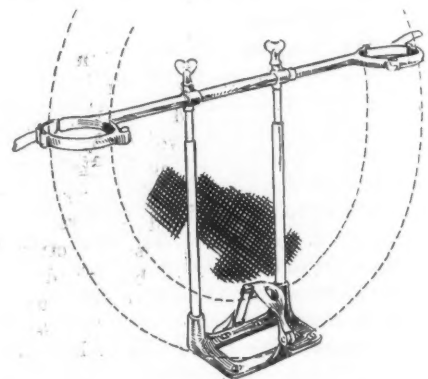
The special feature of the pump is a gauge and exhaust valve. The gauge G is controlled by a regulating finger wheel. It can be set so that the exhaust valve E will open at any pressure between these extremes, thus allowing the air to escape with a whistling noise when the tire is inflated to the required pressure. It is a simple matter to set the gauge to the pressure best suited to the tire. By this gauge and exhaust valve over-inflation is guarded against. Tryon Auto Pump Co., New York city.

BROGA TOP FASTENERS

The Broga automatic top fastener is used to attach storm curtains to the top bows or to attach slip curtains in place. In design it resembles a glove fastener, but is much stronger in design. The fastener holds by virtue of the enlarged end of the stud passing through a spiral spring S, which is formed into a ring or circle. As the end of the stud passes through the spring, the spring is expanded, and immediately the head is through the spring contracts around the neck of the stud, holding it secure. The stud and also the spring part of the fastener are anchored to the top or curtain material by four prongs, which pass through slots in a washer on the opposite side of the material to the fastener and are then bent over, forming a shoulder-to-shoulder grip. Broga Automatic Fastener Co., Syracuse, N. Y.

Wilson Fireless Warmer

A development of the recent season is the Wilson foot warmer for use in motor cars. The warmer consists of a battery carried in a metal case that is 13 inches long, 8 inches wide and 5 inches deep. The case weighs 3½ pounds and the battery weighs 7½ pounds, making a total of 11 pounds. The battery which gives out the heat is carried in a sack. To generate

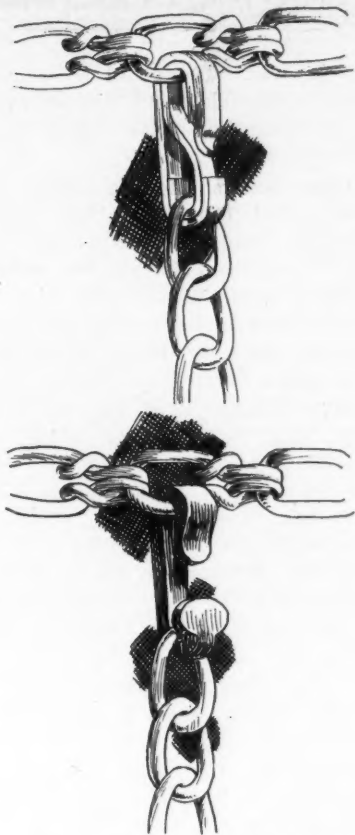


FOREDOOR TIRE HOLDER
DOOR FOR CAPE TOPS



WILSON FIRELESS FOOT WARMER
TRYON POWER TIRE PUMP

heat the battery is taken out and the surface of the sack is moistened with three-quarters of a cup of water, applied



THE PRESTO TIRE CHAIN HOOK
THE LE-VIF TIRE CHAIN HOOK

with a sponge. The battery is then turned over and over so that the contents are well mixed with the water. The battery is then placed in the case, and it is claimed that the generation of heat will begin at once, that enough heat will be coming out in 30 minutes, and that it will continue to give forth heat for 10 hours. Wilson Stove & Mfg. Co., Valley Park, Mo.

Presto Non-Skid Chains

In the Presto tire chain the novelty is in the hook used on the end of each cross chain to attach it to the circumferential chain, at each side of the felloe. This hook is a double link, one link fitting inside of the other. The outside link is like the letter "C" laid on its side and stretched; the inside link is S-shaped. The last link on the cross chain is hooked into the end of the inner link and the link is then slipped into the outer link. The opposite end of the link hooks onto the circumferential chain. The Le-vif hook for use on the ends of cross chains is a lengthened C-shaped link with an oval piece on one end of it so that, when hooking the cross chain on, the end link has to be turned at right angles to pass over the oval end. When the cross link is at any other angle it is locked on by the oval.

The Ever-ready cross chain uses an ordinary snap hook on the end to link to the

circumferential chains. Newhall Chain Forge & Iron Co., New York city.

Stephens Ratchet Wrench

The Stephens ratchet wrench is intended for use on nuts on a motor car where it would be impossible to use an ordinary wrench. The wrench handle ends in a yoke in which is pivoted the head portion which has a two-thirds circle of serrations. In the handle is a spring-controlled pawl which engages the serrations when moving the handle in one direction, but rides over them when the handle is worked in the opposite direction. Stephens Wrench Co., Chicago, Ill.

Joey-Mell Horn

The Joey-Mell exhaust horn is a short aluminum tube weighing not over 1 pound and intended to be fitted onto the exhaust pipe on a motor car. The aluminum tube has a triangular opening in one side like in a tin whistle. It is operated by pedal. It is not a musical horn, but gives a one-tone signal. Joey-Mell, Chicago, Ill.

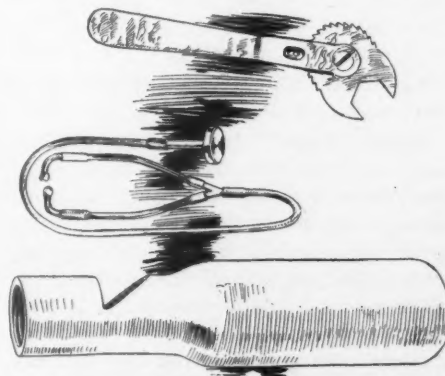
The Monarch Shock Absorber

The Monarch shock absorber is a friction type, the friction being created by a stiff coil spring. One pivotal arm A attaches to the frame, the other, B, to the spring or axle. When assembled they engage, being held in place by the circular ledges. On the arm B, at its hub part, is an incline 3, against which bears a follower or cam piece C. The spring D holds the follower C against the incline 3. By means of the square telescoping bolt E the parts are held together, and the tension of the spring D can be made to suit any car requirements.

In operation the follower C is in the depression of the incline 3, but with the working of the spring, either up or down, it rises on the incline and the friction set up is the shock absorbing feature. Toward the limit of the recoil or upward movement the diminishing leverage of the pull, under increasing resistance of rotation of the two arms A and B, assumes the function of a retarded crank slowly approaching its centers, which is an effective and gradual stop principle. W. P. Kidder, Boston, Mass.

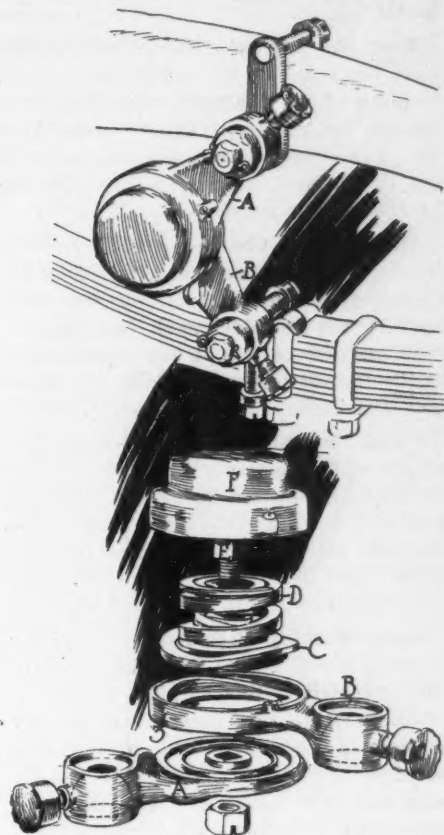
Elektron Electric Horns

The Elektron horn is an electric horn of the electro-magnet type, that is, an elec-



STEPHENS RATCHET WRENCH
VIBRATOR FOR MOTOR KNOCKS
JOEY-MELL EXHAUST HORN

tro-magnet is used to vibrate the diaphragm. It is operated from a storage battery and is 9 inches long, has a 6-inch



MONARCH SHOCK ABSORBER
PARTS OF MONARCH ABSORBER

bell and weighs 2½ pounds. O'Brien Electrophone Co., Hollowell, Me.

Vibrator Finds Knocks

Everybody is familiar with the stethoscope used by the doctor to note the strength of the beating of the heart; it is a part of every physician's equipment. The stethoscope for the gasoline motor has been brought out to assist the driver or repairman in locating the troublesome knocks which he cannot locate or what causes them. This latest motor accessory is called the vibrator and consists of a rubber tube with an open bell-shaped piece at one extremity and the other end branched into two smaller tubes fitted with end pieces, which fit into the ears. Hopewell Brothers, Newton, Mass.

Wohfeld Lunch Kit

The Wohfeld lunch kit has been arranged to carry a good supply of lunch edibles and drinks. It can be strapped to the car running board. It is made of kiln-dried basswood, covered with black enameled duck, with the edges leather board and hand stitched. Two leather straps are fitted to strap it to the running board. The equipment includes: Four white enameled plates, four white enameled cups, four knives, four forks and four napkins. It is built with tray capacity for holding two 1-quart vacuum bottles in addition to the equipment enumerated. Wohfeld Trunk and Bag Co., Philadelphia, Pa.

THATCHER Joins Warren—Fred C. Thatcher has been appointed manager of the Detroit branch of the Warren Motor Car Co.

Keep the Amplex—Grant Brothers, who have taken on the Everitt line in Detroit, in place of the Chalmers, will continue to handle the Amplex. The Security Auto Co., which handled the Everitt, has gone out of business, its sole purpose having been a factory outlet.

Flint Makes a Change—Herbert J. Flint, formerly assistant general manager of the Olds factory and for several seasons manager of the Detroit branch, has resigned that position to accept the management of the Detroit Hupmobile Sales Co., Michigan distributor of the Hupmobile.

Oakland's March Production—The March output of the Oakland Motor Car Co., according to Production Manager S. L. Stone, was 602 cars, all of which have been shipped. In April it is hoped to turn out 1,200 cars. The value of the cars produced last month was more than \$500,000.

Again Working Nights—The motor car works of the J. I. Case Threshing Machine Co., at Racine, Wis., which abandoned its night shift and lengthened the day schedule to 9 o'clock p. m., was forced to return to night work because of the demand for Case cars. A large number of compressed air tools have been installed in the shops recently, facilitating small work.

To Sell Trucks in New York—New York men have formed a \$50,000 concern known as the United States Motor Truck Sales Co. of New York to handle United States trucks in that city and vicinity. The offices of the company are at Fifty-ninth and Broadway. The officers are as follows: J. A. Crutcher, president; F. M. Edwards, vice-president; J. R. Collins, secretary; F. B. Meador, treasurer.

Appoints Truck Committee—The Licensed Automobile Dealers of the city of New York made an investigation and found that over 95 per cent of its members are handling commercial vehicles, so a motor truck committee has been appointed. Milton J. Budlong, president of the Packard Motor Car Co., was appointed chairman. Robert D. Garden, president of the Harrolds Motor Car Co., and R. H. Johnston, of the White Co., were selected to serve on this committee.

Buys Plant at Wabash—The Service Motor Car Co., of Kankakee, Ill., has bought at sheriff's sale the machinery of the Standard Auto Co. of America, at Wabash, Ind., and the former company is completing plans to move to Wabash. As a preliminary step the Service Motor Car Co. has been incorporated under Indiana laws with an authorized capitalization of \$500,000. Those interested in the company are C. S. Rieman, B. F. Rieman, Ford Rieman, E. A. Bullock, C. E. Cowgill, J. M. Harter and Nelson G. Hunter. The Stand-

Among the Makers

ard company moved the machinery to Wabash from St. Louis about 1 year ago, but the project of opening a factory in that city was abandoned.

Porto Rico Buys Pullmans—Porto Rico has proved a fertile sales field for the Pullman Motor Car Co. Since last August the Pullman factory has averaged a three-car shipment to Porto Rico each month. So successful have these cars proved in this island that the Porto Rican agent has already contracted for seventy-five cars for 1912.

Join M. and A. M.—Three new members have been admitted to the Motor and Accessory Manufacturers, as follows: E. W. Bliss Co., manufacturer of machinery for working sheet metal, drop presses, etc., Brooklyn, N. Y.; Interstate Foundry Co., manufacturer of gray castings, Cleveland, O.; Texas Co., manufacturer of gasoline, lubricating oils and greases, New York.

Fiat Will Use Warners—The manufacturers of the Fiat car at Turin, Italy, have decided to use the Warner Auto-Meter exclusively on their product henceforth, following the report of a committee of experts which recently visited America to determine the qualities of various types of speed and mileage recorders. The Warner factory is already working on the first order.

Makes Production Record—For the month of March the Detroit Seamless Steel Tubes Co. established a new production record, the tonnage manufactured being 24 per cent larger than in any previous month in its history. A large percentage of the production of this company is used by the railroads for locomotive flues, and the product for the month of March, if placed end to end, would represent a tube about 175 miles long.

In Trade Credit Association—The following concerns have been elected to membership in the Automobile Trade Credit Association: Tuthill Spring Co., Chicago; Philadelphia Timer and Machine Co., Philadelphia, Pa.; O. K. Specialty Co., Newark, N. J.; Troy Auto Specialty Co., Troy, N. Y.; Troy Carriage Sunshade Co., Troy, Ohio; Economy Tread Co., New York city; H. A. Elliot, Cleveland, O.; J. P. Davies Co., Dayton, O.

Detroit Happy—The Lozier Motor Co. is well established in its new factory out Mack avenue in Detroit, though some of its employees, moved there from Plattsburg, have experienced trouble in securing houses. The move which brought the headquarters of the Lozier company to Detroit gave the city an addition of 400 men, sixty of whom already have moved their families to that city, according to the report of the Detroit board of commerce. Fifteen heads of families receive salaries of more than

\$5,000 a year. The board of commerce claims considerable credit with its connection in interesting local capital in the Lozier plant.

Chicago Dealers' Election—At the postponed annual election of the Chicago Automobile Trade Association, held last Friday night, the following were elected: President, N. H. Van Sicklen, Sr.; vice-president, John H. Kelly; secretary, Frank M. Sparks; treasurer, Henry Paulman; directors, Louis Geyler and Thomas J. Hay.

Another Klaxon Suit—The Lovell-McConnell Mfg. Co. announces it has filed suit against the Automobile Supply Mfg. Co. of Brooklyn, N. Y., and Louis Rubes, its president, for injunction, accounting and damages for infringement of the Klaxon basic patents Nos. 923,048, 923,049, 923,122 by the Newtone horn recently put upon the market by the Automobile Supply Mfg. Co.

Has New Type of Engine—Joseph F. Hirt, 1804 Berlin street, LaCrosse, Wis., designer and builder of a new type of offset cylinder two-cycle motor, is organizing a corporation to be capitalized at \$25,000 for the purpose of placing the engine on the market. It is proposed to purchase the old Cargill elevator, remove several stories, and remodel the remainder into a plant.

Lafayette in Show Game—Motor car tradesmen of Lafayette, Ind., have organized for the purpose of conducting motor car shows and displays. The organization is known as the Lafayette Auto Association and has been incorporated under the Indiana voluntary incorporation act, without capital stock. Those named as directors for the first year are Albert Jamison, C. V. Hickman and M. E. Morgan.

A Lubricant Combination—Through an agreement entered into between the International Acheson Graphite Co. and the Acheson Oildag Co., the first named company on April 1 became general agent in the United States for the sale of the new lubricants, Oildag and Aquadag, products of the second named company. The trade in the future will be supplied with Oildag and Aquadag by the International Acheson Graphite Co., of Niagara Falls, N. Y. The company also makes Gredag.

Makers' Protest Heard—Representatives of most of the car factories of Detroit and Lansing appeared before the senate committee on state affairs to protest Senator Watkins' bill to prohibit testing cars on public highways of Michigan. The representatives were assured that Senator Watkins had consented to amendments to the bill which will overcome the objections of the manufacturers. In committee of the whole the house passed the Copely bill making it a felony with a penalty of

and Dealers

2 years in state's prison for drivers of motor cars to run down persons and then speed away without stopping to give assistance.

Tone Quits American—Fred I. Tone, designer at the American Motor Car Co., Indianapolis, Ind., severs his connection with that concern April 15 and will enter the accessory manufacturing business in Detroit.

Building For Truck Business—L. B. Butler, agent for the Rapid truck in Boston, is having a building constructed for his business on Commonwealth avenue. It is to be one and a half stories high and built of reinforced concrete. It will be 60 by 164 feet. It will be occupied as an office, salesroom and service depot for the Rapid line and will be ready for occupancy next June. About that time three other motor companies will move into new homes near the Butler company.

Baltimore After Plans—Trade bodies in Baltimore are taking an interest in the motor industry as signified by Secretary Norman N. Parrott, of the Travelers and Merchants' Association. He has sent word to many companies telling them of the advantages of locating plants in Baltimore. He has received a number of inquiries for particulars. The Consolidated Gas, Electric Light and Power Co. also has written along the same line to a number of firms. The latter company is working on plans for establishing an electric garage for charging electric cars.

Shiland Resigns—H. E. Shiland, general manager of the Marquette Motor Co., Saginaw, Mich., has tendered his resignation, the same to become effective May 1 or as soon thereafter as consistent with the best interests of the company. Mr. Shiland will make no statement at this time regarding the causes which led up to the resignation, nor his plans for the future. Mr. Shiland has been identified with the industry since 1900. He was for 5 years general sales manager of the Buick Motor Co., Flint, Mich., prior to taking over the management of the Marquette Motor Co.

In Its New Place—During the past week the new building of the United Motor Detroit Co., Woodward avenue and Bagge street, was finished and occupied. The new offices are among the finest in the city, while the salesroom is ample in size. A feature of the equipment is an immense stock room where spare parts will be carried for all the cars of the United Motors line. The local organization supplies considerable territory outside Detroit, both with cars and repair parts. The Detroit United Motors factories will make considerable use of the building and Frank Briscoe, president of the Brush Runabout Co., already has moved into an office in

the new structure, transferring his headquarters from the factory, which is in the northern end of the city and remote from the retail district.

Electric Dealers May Organize—There is some talk in Boston now to have the representatives of the electric vehicles form an organization of their own. There are about a dozen representatives of electric trucks in Boston, and the Edison Electric Illuminating Co., which has just opened its big garage on Atlantic avenue, is behind the movement.

Newspapers Will Help—The Boston Commercial Vehicle Dealers' Association in order to make its run a success next June has asked the various Boston newspapers to each subscribe \$200 towards a fund to finance the trip. Practically all of the papers have agreed to do so. Last year the Boston American conducted a truck run, but the other papers did not give it much publicity and so the association now being well organized proposes to conduct one itself, which means greater publicity.

Uses Only Motor Service—The Marott Department Store Co. is the first completely motor equipped department store in Indianapolis. It is now doing all of its delivery and other work requiring vehicles, with motor cars, and on April 1 had a parade through the down town streets to show its equipment. The company is using three Buick coaches for the convenience of patrons arriving over traction and steam lines and for its delivery service has four Overland delivery wagons and one Cadillac delivery wagon.

Abbott Man for Chalmers—The Detroit retail trade is getting its annual spring shaking up. The results are not as radical as in several former years, however. H. D. Moran, manager of the Abbott-Detroit's retail salesroom, has accepted the offer of the Chalmers Motor Co. and will take charge of the factory branch which the company has established at 268 Jefferson avenue. This formally marks the taking over by the Chalmers company of its local sales, which have been handled ever since the days of the Thomas-Detroit by Grant Brothers.

Slump in New York—A circular letter has been sent to the head of every police department in New York state by Secretary of State Lazansky, calling their attention to the fact that every owner of a motor car and chauffeur who has made application for a license under the Callan law has been given his necessary credentials for this year. The police will now be called upon to enforce the law. "It will interest you," says the letter, "to know that 46,459 owners have registered. Under the first registration in 1910 over 60,000 owners were registered. At the

present time 20,421 chauffeurs have been licensed, while under the first registration there were over 27,000 chauffeurs licensed."

Busy at Pullman Factory—With the receipt of an order for 125 cars from its California agent, a record was broken at the factory of the Pullman Motor Car Co. last week. Fifty of these cars will be shipped to San Francisco and seventy-five to Los Angeles. The order calls for immediate deliveries.

Jeffery Students' Host—Charles T. Jeffery, president of the Thomas B. Jeffery Co., Kenosha, Wis., was the host to several parties of engineering students from the college of engineering of the University of Wisconsin and the Central Y. M. C. A. of Chicago last week. The students went to Kenosha to study factory methods and engineering practice. The Rambler works are frequently called upon to assist in practical instruction in the methods of accuracy, precision and skill by which Rambler cars are built.

Roamers Report—The three cars which Detroit factories are now supporting en tour were all heard from on Sunday. The world-circling Hupmobile has just finished a trip through New Zealand and Tasmania and is now touring Australia, having landed at Sydney. The Detroit-San Francisco Wolverine was last heard of at Gallup, N. M. Twenty-four hours without food or water were experienced east of Albuquerque. The Abbott Bulldog is caught in Oklahoma floods and is having rough going, but reports a mileage of 25,065 since the start of its trip, the purpose of which is the attainment of 100,000 miles.

Metzger Additions—The Metzger Motor Car Co. announces a number of additions to its sales force. Walter C. Hood becomes sales manager; Charles A. Gordon factory superintendent; Harry L. Bill assistant general manager and A. I. Dutton advertising manager. All the new men are experienced in the business. Hood and Bill have been connected with the Chalmers Motor Co. in various departments. Gordon comes from the Case factory and Dutton from the Overland. To fill the vacancy at the Chalmers company left by Mr. Hood's departure, comes W. H. Van Dusen, formerly sales manager of the E. R. Thomas Motor Co., of Buffalo.

White Truck Service Building—One of the first of the New York concerns to recognize the necessity for a service building especially adapted for motor trucks, the White Co. announces it has disposed of its service building in West End avenue and has acquired a large plot of ground on West Fifty-seventh street, where it will immediately construct a building especially designed for the economical handling of motor trucks. The plot secured by the White Co. is on the north side of Fifty-seventh street, between Eleventh and Twelfth avenues, and is of 250 feet frontage by 100 feet in depth.

NELSONVILLE, O.—C. E. Morgan has opened a garage at the corner of Columbus and Fulton streets.

Long Branch, N. J.—Herbert W. Cooper and A. M. Tobasky have formed a partnership for the purpose of dealing in cars.

Louisville, Ky.—Extensive repairs are being made on the United Auto Co.'s garage on Fourth street. The garage will be enlarged.

Scranton, Pa.—The Wyoming Auto Co. is located at 231 Wyoming avenue. The Wyoming company is the local agent for the Ohio and Penn.

Columbus, O.—The Hudson Sales Co., central Ohio agent for the Hudson, has placed a subagency with Madder-Fissell and Eby, of Circleville, Ohio.

Columbus, O.—The Curtin-Williams Co., of Columbus, central Ohio agent for the Cadillac, has placed a sub-agency with Braddeck & Jones, of Newark, O.

Racine, Wis.—R. A. Huff, mechanical manager of the Breitzke & Pauli garage, has resigned to accept the position of general manager of the Third Street garage at Racine.

Columbus, O.—Harry D. Sims, formerly assistant secretary of the Columbus Automobile Club, has joined the sales force of Dr. R. C. Westcott, central Ohio agent for the Regal.

Boston, Mass.—Roy Faye, agent for the Matheson, has taken the agency for the C. R. G. carburetor. It gets its name from its designer, Charles R. Grueter. It is made in Saugus, Mass.

Jackson, Mich.—The work of installing machinery in the large addition to the factory of the Clarke-Carter Automobile Co. is well under way. With the addition the capacity of the plant is quadrupled.

Indianapolis, Ind.—The Westcott is to be distributed in New England by the John I. Taylor Motor Sales Co. This company is to make a specialty of the Westcott and the Decatur truck.

Toledo, O.—The Inter-State Supply Co. has been incorporated with a capital stock of \$10,000 by Clarence D. Pettingell, Fred H. Kruse, Jennie Samsen, William J. Fritsch and Mark Winchester. The concern announces that it will engage in the manufacture and sale of motor cars.

Hartford, Conn.—The Capitol City Auto Co.'s business has increased to such an extent that it has become necessary to make big additions to its present building. The present structure is one story high and the addition consists of a second story, doubling the present space. The company is the local agent for the Mitchell.

Indianapolis, Ind.—The demand for quarters for motor car sales rooms has increased to such an extent in Indianapolis that Arthur V. Brown has decided to further extend the North Delaware street motor row. He has begun the erection of a two-story and basement brick building, 67½ by 120 feet, which will contain three

Brief Business

sales rooms. One of these will be used for a factory sales branch of the Fisk Rubber Co.

Bangor, Me.—The Harmon Automobile Co. has opened salesrooms in Bangor at 120 Main street.

Baltimore, Md.—Carl Spoerer Sons have entered the commercial field and are manufacturing trucks and delivery wagons.

Buffalo, N. Y.—Walsh Brothers have secured the agency in this city for the Chase motor truck. The show rooms are located at No. 1114 Main street.

Buffalo, N. Y.—James T. Kennedy, formerly with the Chisholm Sales Corporation, has been appointed manager of the Matheson Sales Co., now in process of incorporation, and to be located at 720 Main street.

Moline, Ill.—Among the new foreign agents of the Velie Motor Vehicle Co., of Moline, Ill., are Strong & Trowbridge, Australia and New Zealand; Mr. White, Toronto, Canada; Hernandez & Barasorda, Porto Rico.

Boston, Mass.—W. L. Russell & Co., agents for the Regal, Apperson and Morgan truck, have incorporated under the name of the W. L. Russell Co., with Mr. Russell as president and George R. Armstrong treasurer.

Cleveland, O.—J. W. Peterson, former superintendent of the Hupmobile factory, has charge of the Hupp Motor Sales Co.'s repair department. John Roach has leased an additional building for an exclusive service department.

New York—The garage on West End avenue and Seventieth street, which was founded by the White Co. for the exclusive use of the White clientele, is now an owner's garage, operated by the Independent Owners' Garage Co.

Oklahoma City, Okla.—C. M. Barbour, formerly state manager of the E-M-F Oklahoma City Co., has been succeeded by John Yoke, of Detroit, Mich., who has been placed temporarily in charge of the E-M-F and Flanders business in the state of Oklahoma.

Janesville, Wis.—Prielipp Brothers, Buick agents, have been obliged to seek larger quarters at 215-217 East Milwaukee street. A large repair shop has been established. The old quarters on North River street will be maintained as auxiliary shops for the present.

Clarksburg, W. Va.—The Monticello Automobile and Garage Co. has been chartered with an authorized capital of \$100,000. Its officers are as follows: President, D. W. Jacobs; vice-president, Curtis F. Prunty; treasurer, Hugh Jarvis; secretary, Arthur Parsons. The company is building a garage 80 by 200 feet at East Main

street and Monticello avenue. John W. Jacobs will be general manager and the Lozier car will be handled.

Washington, Pa.—The Washington Automobile Co. has ordered a big repair shop built of fireproof construction.

Uniontown, Pa.—The National Automobile garage at 15 Ray street has secured P. H. Pendleton, of Pittsburg, to act as manager. The company will handle the Selden.

Davenport, Ia.—C. W. Weatherton, with the Campbell Motor Car Co., of Davenport, has been appointed agent for the Overland. His territory is Scott and Linn counties.

Boston, Mass.—The Westcott has made its appearance in Boston, having been taken on by the Taylor Motor Sales Co., which also has the Decatur truck and the Herreshoff.

Toledo, O.—Another addition to the long list of Toledo concerns will be made within the next few days, when local rooms will be opened for the Clark line of cars. Quarters are now being prepared on Tenth street. C. J. Osborne is state representative for the Hoosier product.

Akron, O.—The Akron Automobile Dealers' Show Co. has been incorporated with an authorized capital of \$5,000 for the purpose of holding annual motor car displays at Akron. The incorporators are Cecil Walker, A. Auble, Jr., Enoch F. Jones, Al J. Engel, Louis F. Frisch and J. M. Sauder.

Pittsburg, Pa.—The F. B. Stearns Co. of Cleveland has leased from the Nicola Land Co. 40 by 110 feet on Louisa street near the Schenley park entrance and will have built at once a two-story fireproof garage of concrete and terra cotta. The building and site will cost \$50,000. The establishment will be under the management of F. B. Kunkle.

Brooklyn, N. Y.—The Wood Auto Co. has a new establishment at Lafayette, near Franklin avenue. It has a floor space of 54 by 100 feet, three stories high, running through from Lafayette avenue, with a rear entrance on Kent avenue. One hundred by 20 feet of the ground floor is taken up as a show room and storeroom for the Oakland cars, the balance is used for offices.

Cincinnati, O.—The following Ohio car agencies have been recently established: Eudore Chevrier, Winnipeg, Manitoba, to handle the Ohio line for Winnipeg and surrounding territory; Great Northern Implement Co., Minneapolis, Minn., to handle Minneapolis and surrounding territory; Neches Motor Car Co., Beaumont, Texas; Standard MotoCar Co., Des Moines, Iowa, Des Moines and surrounding territory; Zust Motor Car Co.,

Announcements

New York; J. C. Luke Auto Co., Ocilla, Ga., state of Georgia; Evans-Rich Co., Cincinnati, O.

Des Moines, Ia.—The Port Huron Machinery Co. has taken the Des Moines agency for the Havers car.

St. Cloud, Minn.—The Sauk Center garage has changed hands, Blied & Johnson selling to the firm of DeLacy & Seovel, of Minneapolis, who are now in possession.

New York—The Firestone Tire and Rubber Co. of New York has moved into new quarters at 1871-75 Broadway. Three upper floors and basement are used for storage and shop equipment.

Columbus, O.—The Cummins Auto Sales Co., of Columbus, agent for the Elmore in central Ohio, has placed the following sub-agencies; Zanesville, N. E. Draper; Athens, Nile Wilson; Washington C. H., J. M. Baker.

Washington, D. C.—The Rambler Automobile Co. of Washington has taken possession of its new building at 1220 New York avenue, known as the Rambler building. In connection with the sale of Rambler cars the company will also operate a motor car school.

Columbus, O.—Kimmell Brothers, central Ohio agents for the Speedwell and Badger, have moved into their new sales rooms, located at 225 North Fourth street. The first floor will be used for offices and show rooms and a large basement will be used for a repair shop. The second floor is for the storage of cars.

Detroit, Mich.—John R. Ide has resigned his position in the sales department of the Hyatt Roller Bearing Co., and has engaged with the New Departure Mfg. Co. Mr. Ide will continue to reside in Detroit and will be connected with the western branch of the New Departure company, which is shortly to be opened in this city.

St. Joseph, Mo.—The St. Joseph Automobile Dealers' Association, to cooperate with the Southwest Auto Dealers' Association which was recently organized in Kansas City, was formed at a meeting of representatives of all the local companies. The following temporary officers were elected: Walter H. Robinson, president; W. H. Holliday, treasurer, and Guy Hall, secretary.

Buffalo, N. Y.—D. R. Lindsay, for 3 years in the sales department of the Pierce-Arrow Motor Car Co., has assumed his duties as sales manager of the new Denniston Truck Co. The Denniston company will move into its new five-story home in Main street some time next month. The four upper floors and a sales room and office on the ground floor will be occupied by the company. The balance of the

ground floor will be occupied as sales rooms for the Packard, Thomas and Hupp-Yeats.

Cleveland, O.—D. W. Iseminger of Chicago has been appointed manager of the Velie Cleveland branch.

Hammond, La.—James Fairchild & Co. have succeeded Settoon & Humphries in the livery and garage business here.

Boston, Mass.—The New England branch of the Oldsmobile now has a modern service depot across the river in Cambridge, near half a dozen others.

Greenfield, O.—J. E. Upp & Son is the name of a new garage opened at Greenfield, in the Porter building. The company has the agency for the Cadillac line.

Boston, Mass.—S. L. Harmon, who was connected with the local branch of the Grabowsky truck, has gone to Montreal, where he is working for the same company at that agency.

Columbus, O.—Charles Ross, who has been conducting a repair shop in Columbus for some time, has opened a new garage at Walnut and Wall streets. A repair shop has been installed.

Wilkesburg, Pa.—The new garage of the Elmore Motor Car Co. at 725-731 Ross avenue will be completed May 1. Its manager will be W. L. Poffinberger. The building is fireproof, with 12,000 square feet of concrete floor space.

Washington, D. C.—The Imperial Motor Co. has opened its new salesroom at 1124 Connecticut avenue and will continue to handle the White and Rauch & Lang electric. A garage and repair shop will be maintained at 1214 V street, N. W.

Washington, D. C.—The new salesroom of the Zell Motor Car Co., at 1405 H street, N. W., is rapidly nearing completion and will be ready for occupancy April 15, at which time the company will remove from its present quarters.

Baltimore, Md.—The Lord Baltimore Automobile Co., J. Luntz, proprietor, will be incorporated with \$100,000 capital stock to manufacture motor trucks. The company's office is at 1523 Retreat street. The company has been handling pleasure cars.

Baltimore, Md.—C. E. Eckenrode of this city will erect a motor car factory at 16-20 North Carrollton avenue. He has awarded the contract for a three-story building, which will have a marble front. The building also will include a paint shop.

Indianapolis, Ind.—Dealers in Indianapolis are still taking on new agencies. The Indianapolis Motor Car Co., which was the first concern in the city to devote its attention exclusively to commercial cars, has just taken the agency for the Sampson trucks. A. L. Sheridan has opened

an agency for the Colby with quarters with the Capitol Auto Co., 510 North Capitol avenue boulevard.

Jacksonville, Fla.—Ogletree & McManus are opening an office and store in which to show the Primo car.

Grand Rapids, Mich.—Adams & Hart have taken the west Michigan agency for the Chase line of motor trucks.

Cleveland, O.—The Lion Sales Co., Euclid avenue and East Nineteenth street, has added the Case truck to its line.

Hartford, Conn.—A. F. Lyon has been appointed state agent of the Austin. He will open a garage on Hoadley place within a few days.

Meyersdale, Pa.—O. C. Gurley has bought a half interest in the business owned by T. W. Gurley, and the firm will hereafter be known as Gurley Brothers.

Greensburg, Pa.—J. E. Shields has sold the big garage of the St. Clair Automobile Co. at that place to Asa Wible and Benjamin Veener, who now are in charge.

Buffalo, N. Y.—The Windsor Motor Co., local agent for the Kilmore, has secured the services of C. E. Farnham, of Harrisburg, Pa., who is to be manager of the sales department.

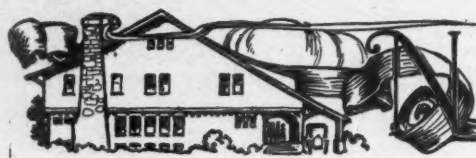
Baltimore, Md.—J. S. Ditch, representative of the Klinekar, will erect a new one-story fireproof garage at Mount Royal avenue and McMechen street. The building will be 96 by 111 feet and will cost \$15,000.

Cleveland, O.—The Brookside Machine and Repair Co. has been incorporated with an authorized capital of \$10,000 to manufacture and repair motor cars and gasoline engines. The incorporators are Michael Diebold, Conrad Marquard, Vachar Vohaty, Charles Vohaty and S. H. West.

Akron, O.—The Prudential Rubber Co., has been incorporated with a preliminary capital stock of \$10,000 for the purpose of manufacturing and selling all kinds of rubber articles. It is proposed to increase the capital at a later date. The incorporators are Frank C. Mielhoff, Edward O. Mielhoff, G. B. Motz, W. E. Young and H. E. Andrews.

Toledo, O.—B. O. Gamble has closed a contract by the terms of which he will open a Toledo branch of the Kelly-Springfield Tire Co., of Akron, O. The headquarters of the new branch will be with the Gamble company on Madison avenue. D. M. Bresnehan, formerly traveling salesman for the Warner speedometer, will have charge of that end of the business.

Des Moines, Ia.—T. J. Williams, former president of the Brown-Williams Co., which handled the Warren-Detroit, Corbin and Auburn cars last year, has become general manager of the Iowa Auto and Supply Co. Mr. Williams succeeds R. E. Allmart, who goes to the Ryan Motors Co., Iowa agent for the Chalmers and Pierce-Arrow. The Iowa Auto and Supply Co. handles the Velie, Woods electric and Locomobile.



News from the Motor Clubs

CLUB at Vandegrift—The Vandegrift Automobile Club has been organized at Vandegrift, Pa., with the following officers: President, W. H. George; vice-president, G. A. Hunger; secretary, J. Grant McGeary; treasurer, A. G. Atkinson.

Buffalo Club's Growth—At the recent regular monthly meeting of the membership committee of the Automobile Club of Buffalo, 131 new members were elected to the organization. This brings the club's roster over the 2,500 mark and continues to sustain its reputation as being the largest individual motoring organization in this country.

Club Will Warn Reckless Ones—The Automobile Club of Syracuse, N. Y., will employ permanently a motor cycle rider to patrol the city's principal streets and pursue drivers who violate the speed limit or run machines with muffler cutouts open. Overtaking them, the motor cyclist will present one of the club's cards, with the request that greater care in driving be exercised. While it is a thankless job, the club officers think the motor cyclist's efforts will be productive of good. At a recent meeting of the signboard committee it was decided to place route signs about the city to aid tourists and also to extend this work both east and west and north, to Watertown, Utica and Ithaca respectively, the work to be done by July 15.

Discontinues Ladies' Nights—It has been decided by the Automobile Club of Maryland to discontinue ladies' nights, which have been held monthly by the members for several years. Instead one of these events will be held each year, making it a special occasion in club circles. Because of the regularity with which special nights for the fair sex have been held the attendance has not been what the officers have desired it to be. They figure, therefore, that by having one of these nights each year it will be appreciated more by both the members and visitors and a large crowd will be assured.

Bloomington Busy—The annual meeting of the McLean County Automobile Club of Bloomington, Ill., will be held on April 19, at which time officers will be elected for the ensuing year and arrangements perfected for the annual reliability run in May. The club is taking an active part in the good roads movement and is supporting the first substantial effort in this direction, that being the construction of a hard road from Bloomington southwest to extend from the end of the pavement in Bloomington 3 miles in the country. Private contributions to the extent of \$5,000 have been received. Crushed stone from the Joliet penitentiary will be used, being donated by the state. The road will be part of the proposed highway between Chi-

cago and St. Louis. There will be 10 inches of this stone and the road will be 12 feet in width. The state highway engineer will be in charge.

Chicago Motor Club Growth—As a result of a team membership contest, in which five teams competed for 1 week, 150 new members were added to the Chicago Motor Club, bringing the total up to 780. The team captained by R. E. Greene won the Beecroft-Zucker cup.

Columbus Club Meets—A social session of the Columbus Automobile Club, of Columbus, Ohio, was held April 6, at which time a number of matters were taken up. H. M. Myers, a local good roads enthusiast, made a talk urging the members to aid in passing good roads legislation now pending before the Ohio general assembly.

Milwaukee After Members—The Milwaukee Automobile Club has started a campaign to increase its membership to an even 1,000 and 500 names are expected to be added to the rolls before July 1. Because the long projected club house is now a fact, Milwaukee motorists are flocking to the secretary's office and at the director's meeting last week seventy-one names were approved, the largest batch ever received into membership at one time. The club is planning for an active summer season and about eight short 1 or 2-day tours are in preparation.

Enthusiastic at Omaha—The Omaha Motor Club has started on a campaign of boosting for good roads in Nebraska, and of marking the highways with permanent signs. At a meeting held last week, it was decided to begin placing signs on the roads leading out of Omaha. It was determined to use reinforced concrete posts, with iron and enamel signs. These will make the most permanent sign posts of any in this section of the country. The signs will have the direction, mileage and emblem of the organization. The first road will be the one from Omaha to Blair. Posts will be placed every mile or mile and a half. Other roads will be marked this spring.

Interested in Spring Run—At a meeting of the Quaker City Motor Club of Philadelphia it was unanimously agreed to make the headquarters of the club's run to Atlantic City on Saturday, April 29, the Hotel Strand, this hostelry having perfect facilities for the checking in of cars. Mayor Stoy, of Atlantic City, has been in consultation with President Berger, of the Q. C. M. C., regarding details of the run, and a conference with Mayor Reyburn will be held shortly to fix the secret time schedule. George E. Potts, pathfinder, reports that the route adopted will afford a pleasant diversion from the well-known path ordinarily traveled, and is even under pres-

ent conditions in very good shape. Up to and including today twenty-six entries have been received, exclusive of press and guest cars.

Will Observe Orphans' Day—The Automobile Club of Syracuse will observe orphans' day this year the second week in June, taking the children of the Onondaga Orphans' Home for a long country ride and treat. Last year there was no observance, a mild childish epidemic preventing.

A Good Example—The little village of Rio, Wis., has set aside a fund of \$5,000 for good roads construction and highway improvement in the village and vicinity this summer. The citizens, realizing the unmeasurable amount of good resulting from good roads, convinced the authorities of the fact and the appropriation was made without a murmur. Rio is on the principal route from Milwaukee to Madison, the state capital, via Portage.

Another Trip Planned—President M. C. Moore of the Wisconsin State Automobile Association is arranging for the second and final pathfinding tour for the second annual reliability tour to be run in July. The 1911 tour will be run over a course that practically follows the borders of the state, excepting only the extreme northwestern part. The first day will be along the west shore of Lake Michigan; the second across northern Wisconsin; the third finishing the cross-state run and then going along the Mississippi at the western border; the fourth southward to nearly the southern border and the fifth across the southern part of the state to Milwaukee. The tour will last 6 days, the third day out being Sunday, which will be open for the semi-annual or mid-summer meeting of the Wisconsin State A. A. LaCrosse has definitely been selected for this event.

Right Kind of Activity—The Parsons Automobile Club, of Parsons, Kansas, has held its third annual election of officers and the following have been elected: P. M. Kimball, president; Charles D. Steele, vice-president; T. M. Flynn, second vice-president; Baker Fischer, secretary; E. F. Delay, treasurer. The matter of purchasing a site for a club house was taken up and a committee appointed to select a suitable location. It also was decided by the club to offer a standing reward for evidence leading to conviction of any party either stealing or defacing a motor car belonging to a club member. Prizes will be given by the club to the farmers in this vicinity who maintain the best mile of road for a certain length of time. This is done in order to get the farmers interested in the good roads movement. There were also fifteen new members added to the club's present enrollment.